1991-92 School Year

Annual Report

Diploma Examinations Program

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This document was written primarily for:

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Teachers	✓
Administrators	✓
Parents	
General Public	
Others (Specify)	Researchers

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Message from the Director

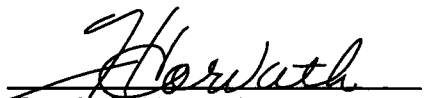
Many teachers worked with us during the 1991-92 school year, assisting in exam development, field testing, marking, and the administration of the diploma exams. Superintendents, high school principals, and other school personnel have also helped make the Diploma Examinations Program effective. I appreciate their commitment, and I want to thank them for the support and assistance they have provided.

Our annual report combines the January, June, and August results for diploma exam courses. The graphs, tables, and text describe student performance for the whole school year. As before, we present data for three consecutive years for each diploma exam course. Some other features of the previous report are repeated, including the separate presentation of school marks, exam marks, and final marks for each course, and results by gender. However, we have discontinued the practice of including, as appendices, the examiners' reports for the January and June exams.

Our data show that in the 1991-92 school year, the number of students writing diploma exams continued to increase. Final marks in the diploma exam courses showed that over 85% of our students achieved the *acceptable standard* or higher in each course. In most courses, a high percentage of students also achieved the *standard of excellence*. This includes Mathematics 30, where 17.4% of the students achieved final course marks of 80% or higher.

A highlight of this report, presented in Section 5, is a discussion of a special study on enrolment and achievement. Results of the study indicate that a high participation rate does not of itself fully account for low student achievement where it occurs. We are sending information to each high school on its participation rates in diploma exam subjects.

I hope that you will find this report useful, and I welcome any comments and questions that may arise. Please feel free to call or write to me, or contact any of the Student Evaluation staff. You can also send feedback by completing the questionnaire, which is included at the end of the report. We are committed to communicating the achievement results of our graduating students clearly and in ways that encourage improvements in education.



Frank G. Horvath, Director

Section 1
Grade 12 Diploma Examinations Program

This *Diploma Examinations Program Annual Report* provides province-wide results for the entire school year; that is, for the January, June, and August examinations combined. Additionally, the annual report provides summaries of results by gender, for population subgroups, and for achievement-over-time studies.

Occasional research findings on issues of topical interest related to the program are also featured. In this 1991-92 report, the results of a special investigation into diploma examination participation rates are presented.

The Grade 12 Diploma Examinations Program, established in 1984, has three main purposes:

- to **certify** the level of individual student achievement in selected Grade 12 courses
- to ensure that province-wide **standards** of achievement are maintained
- to **report** individual and group results.

The examination development process, described in Appendix A, ensures that this form of assessment provides valid and reliable results. Eight Grade 12 courses have diploma examinations, and five of these* are available in French translation:

- English 30
- English 33
- Social Studies 30*
- Français 30
- Mathematics 30*
- Biology 30*
- Chemistry 30*
- Physics 30*

Diploma Examinations are administered in January, June, and August of each school year.

Certification

A student's final mark in a diploma examination course is a fifty-fifty "blend" of the examination mark and the school-awarded mark (except for students with mature status; see Section 4). For example, a diploma examination mark of 57% combined with a school-awarded mark of 45% would produce a **final course mark of 51%**, a "pass" in the course. This student would earn high school graduation credits. The "blending" of the two marks to produce a final course mark recognizes the fact that the diploma examination assesses only those learning outcomes, listed in the *Program of Studies,* that can be effectively measured in a limited time using paper and pencil tests. Only the school can assess students' achievement in the laboratory, in research, in oral communication, and in co-operative learning.

Standards

The *Program of Studies* for each diploma examination course outlines what students are expected to know and to be able to do in order to pass the course. Information bulletins published at the beginning of the school year provide details about "how well" students are expected to do, i.e., the bulletins outline the performance standards for each diploma examination course. Students who achieve the *acceptable standard* of performance receive a final mark of 50% or higher. Students who achieve the *standard of excellence* receive a final mark of 80% or higher.

Reporting

The results achieved by students in the Diploma Examinations Program are aggregated at the school, jurisdiction, and provincial levels and are presented in this and three other reports described below. Their purpose is to help school administrators, teachers, trustees, and Alberta Education evaluate the effectiveness of educational programs. Guidelines for interpreting and using these reports are given in Appendix B.

The reports should not be used as the basis for evaluating teacher performance or for comparing performance between schools or jurisdictions.

Percentage Distribution of Marks in Diploma Examination Courses is a three-page report distributed to educators in schools, jurisdictions, and other educational institutions approximately three weeks after the January and June examinations are written. The report is also available to the public on request. The reports issued in 1992 are reproduced in Appendix C.

School and Jurisdiction Reports for each diploma examination course are distributed to educators, school administrators, school boards, and teachers soon after the January and June administrations. These reports provide results at the question and sub-test level for each school and jurisdiction. This information is particularly useful in assessing the strengths and weaknesses of local programs. These reports are available to the public through the superintendent or principal, according to local board policy.

Examiners' Reports for each course, which are distributed at the same time as the *school and jurisdiction reports*, are written primarily for teachers. Provincial results are provided in relation to course standards as reflected in the examination blueprint and information bulletins. The collected January and June 1992 *Examiners' Reports* are published in a separate volume, which is available on request.

Section 2
Summary of Results

This section provides the overall results and describes certain broad characteristics of the student population that wrote the diploma examinations.

The following questions will be answered:

- What percentage of students attained the *acceptable standard* or higher or the *standard of excellence* or higher according to criteria set by Alberta Education?
- How many students wrote each diploma examination and how do these numbers compare with the previous two years?
- What was the average number of different diploma examinations written by each student in each course during the 1991-92 school year?
- What was the distribution of A, B, C, and F for each diploma examination course and how does this distribution compare with previous years?
- For each diploma examination course, what is the correlation between examination marks and school-awarded marks?

What percentage of students attained the *acceptable standard* or higher or the *standard of excellence* or higher according to criteria set by Alberta Education?

Figure 2-1 shows the percentage of students achieving the *acceptable standard* or higher and the *standard of excellence* or higher based on the final course mark. The "final course mark" is the average of the school-awarded mark and the diploma examination mark or as otherwise provided by Alberta Education policy.

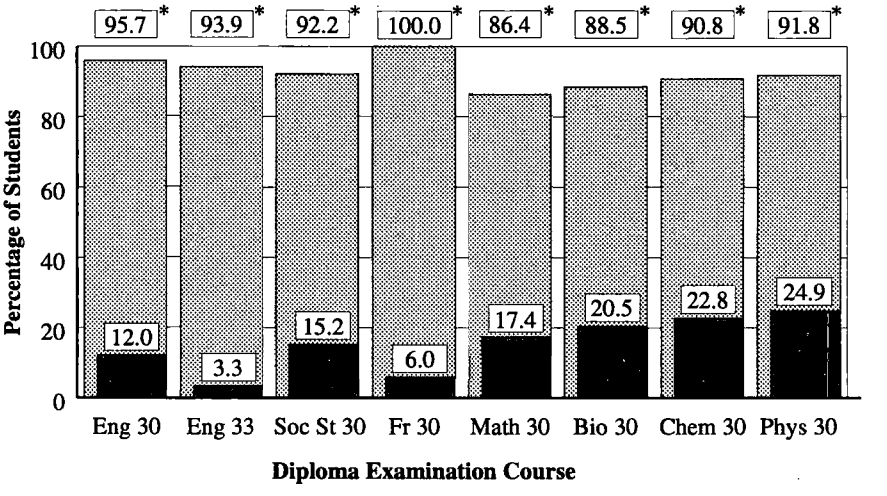
During the 1991-92 school year, final course marks showed that over 85% of students achieved the ***acceptable standard* or higher** in each course. In six courses (English 30, English 33, Social Studies 30, Français 30, Chemistry 30, and Physics 30), more than 90% of students achieved the *acceptable standard* or higher. The lowest percentage of students achieving this standard was in Mathematics 30.

Generally, a high percentage of students also achieved the standard of excellence or higher; for example, 24.9% of Physics 30 students achieved this standard. However, only 3.3% of English 33 students achieved the standard of excellence or higher.

In Alberta, courses are selected by students according to their own needs, aspirations, and expectations. This may account for much of the differential achievement between courses. For this reason, expectations of the percentage of students who achieve the *acceptable standard* or higher or the *standard of excellence* or higher are best interpreted in the context of local policies and conditions.

Figure 2-1

Percentage of Students Achieving Standards (Final Course Mark)
1991-92 School Year



Students achieving the *acceptable standard* or higher.

Students achieving the *standard of excellence* or higher (final course mark of 80% to 100%).

*The percentage of students achieving the *acceptable standard* or higher (final course marks of 50% to 100%).

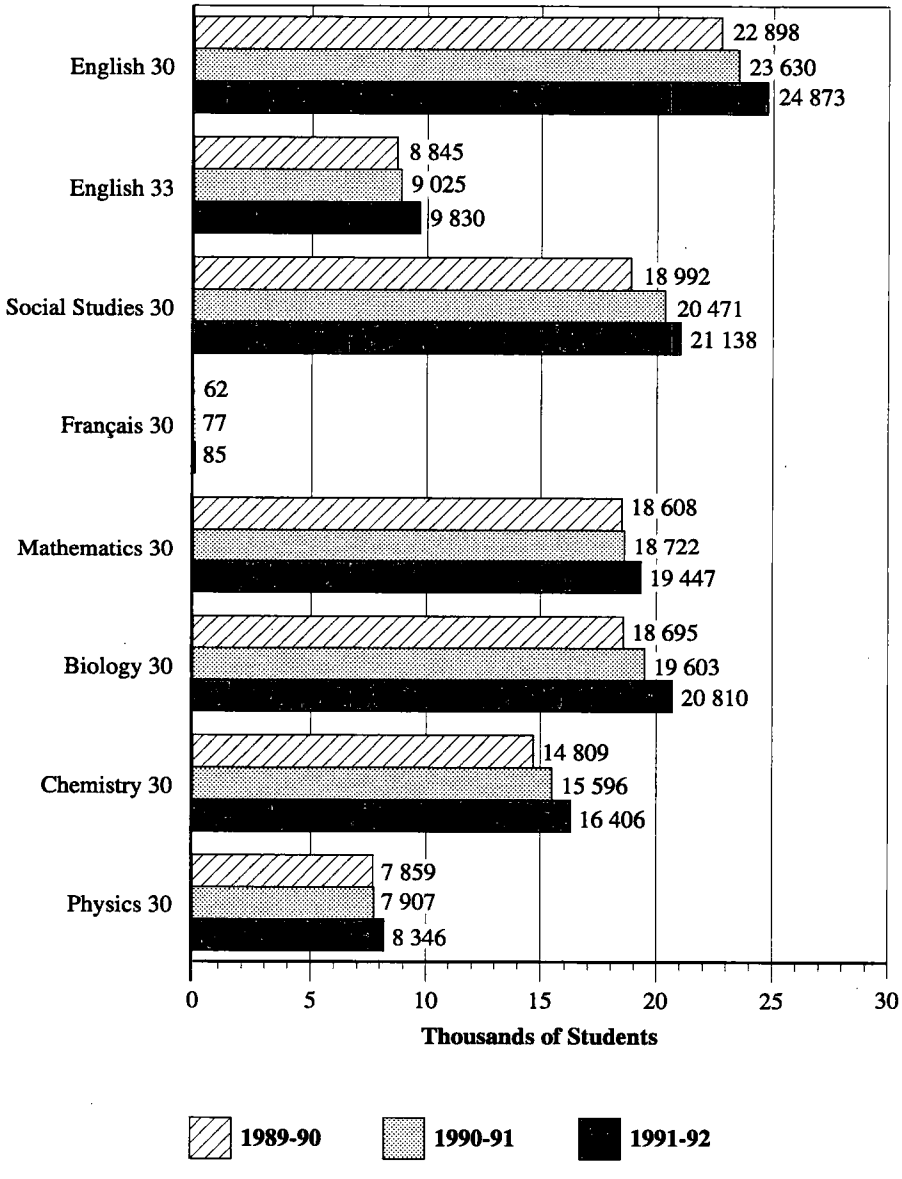
How many students wrote each diploma examination and how do these numbers compare with the previous two years?

As shown in Figure 2-2, the number of students writing each diploma examination increased consistently during the last three years. English 30 has the highest numbers, followed by Social Studies 30 and Biology 30. In terms of absolute numbers, the increase in 1991-92 over 1990-91 is greatest in English 30 (an increase of 1 243 students). In terms of percentages, the increase is highest in English 33 (an increase of 8.9%).

Note: All students who wrote more than one diploma examination in a course during a single year are counted only once. Students who wrote examinations in the same course in different years are counted once in each year that they wrote. Students from the Northwest Territories are not included in these counts. Because Figure 2-2 includes students who were not given a school mark, the numbers are slightly higher than in the figures on pages 5 to 8.

Figure 2-2

Number of Students Writing Diploma Examinations in Each Course 1989-90, 1990-91, and 1991-92 School Years



What was the average number of different diploma examinations written by each student in each course during the 1991-92 school year?

As shown in Figure 2-3, the average number of different diploma examinations written by students writing the English 30 examination during the 1991-92 school year is 3.5, and the average for students writing the English 33 examination is 1.6. Students writing the Français 30 examination average 4.9 different diploma examinations per student.

What was the distribution of A, B, C, and F for each diploma examination course and how does this distribution compare with previous years?

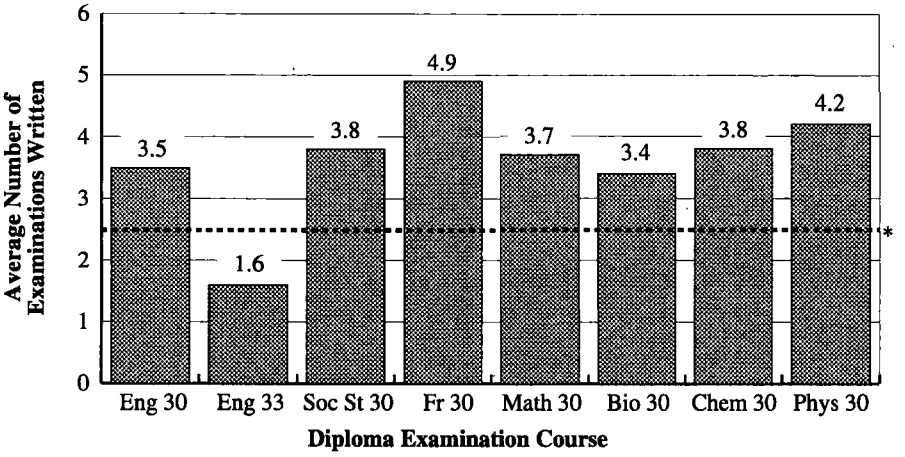
The distribution of A, B, C, and F for each course is shown in figures 2-4 to 2-19.

There are two graphs for each course. The first shows the distribution for final course marks over the last three years. The distributions remained relatively unchanged over time for all courses except for Mathematics 30, where the percentage of A decreased slightly and the percentages of B and C increased slightly in 1991-92 as compared to 1990-91.

The second of the two graphs shows the 1991-92 school year distribution of A, B, C, and F for the school-awarded mark, the diploma examination mark, and the final course mark. For example, the awarding of F to English 33 students for the final course mark is much lower than the awarding of F for either the school-awarded mark or the diploma examination mark. One reason for this is that no final marks of 48% or 49% are awarded. If the average of the school-awarded mark and the diploma examination mark is 48% or 49%, the student is automatically given 50% as a final mark.

Figure 2-3

Average Number of Different Diploma Examinations Written by Students in Each Course 1991-92 School Year



*-------- Average number of different diploma examinations written by all students (2.5). This average is the same as in 1990-91.

Figure 2-4

English 30
Distribution of A, B, C, and F for Final Course Mark Three School Years

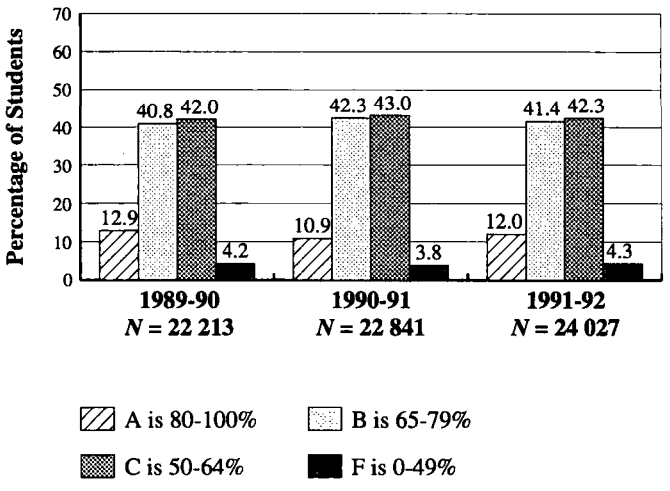


Figure 2-5

English 30
Distribution of A, B, C, and F for School, Examination, and Final Course Marks 1991-92 School Year

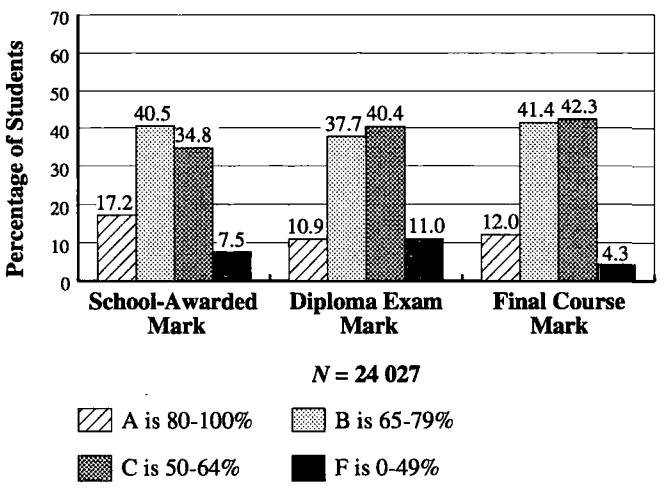


Figure 2-6

English 33
Distribution of A, B, C, and F for Final Course Mark Three School Years

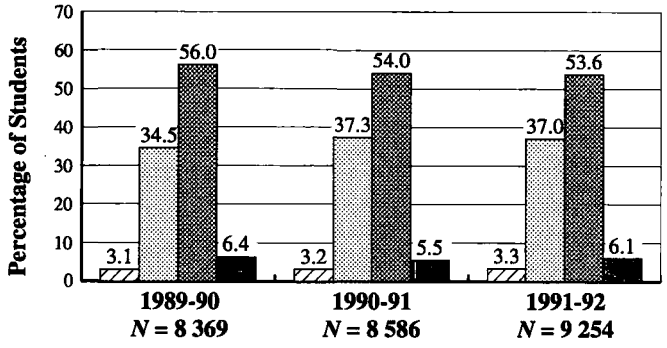
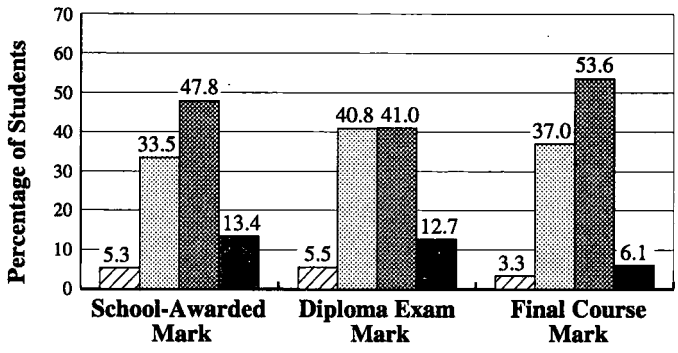


Figure 2-7

English 33
Distribution of A, B, C, and F for School, Examination, and Final Course Marks 1991-92 School Year



N = 9 254

Figure 2-8

Social Studies 30
Distribution of A, B, C, and F for Final Course Mark Three School Years

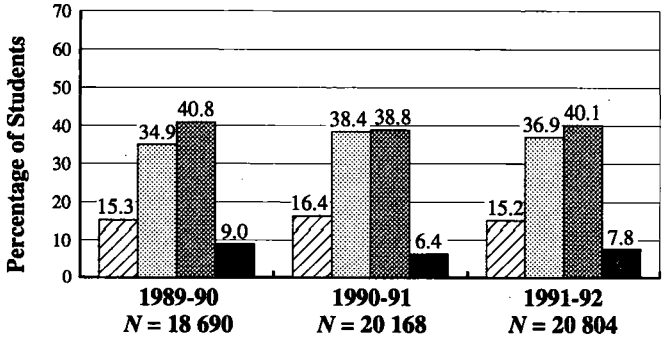
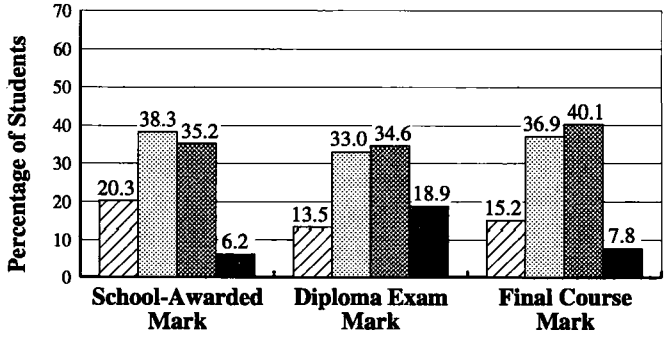


Figure 2-9

Social Studies 30
Distribution of A, B, C, and F for School, Examination, and Final Course Marks 1991-92 School Year



N = 20 804

Figure 2-10

Français 30
Distribution of A, B, C, and F for Final Course Mark Three School Years

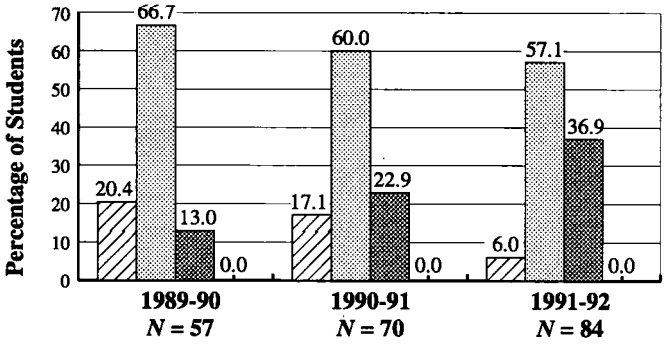
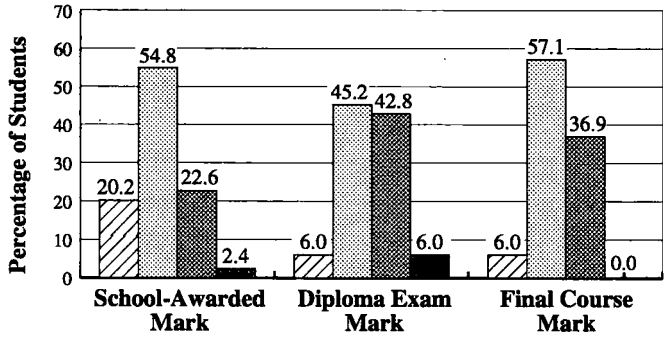


Figure 2-11

Français 30
Distribution of A, B, C, and F for School, Examination, and Final Course Marks 1991-92 School Year



N = 84

A is 80-100% B is 65-79%
C is 50-64% F is 0-49%

A is 80-100% B is 65-79%
C is 50-64% F is 0-49%

Figure 2-12

Mathematics 30
Distribution of A, B, C, and F for Final Course Mark Three School Years

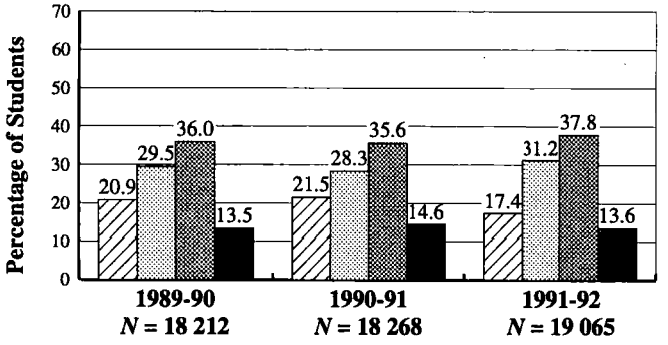
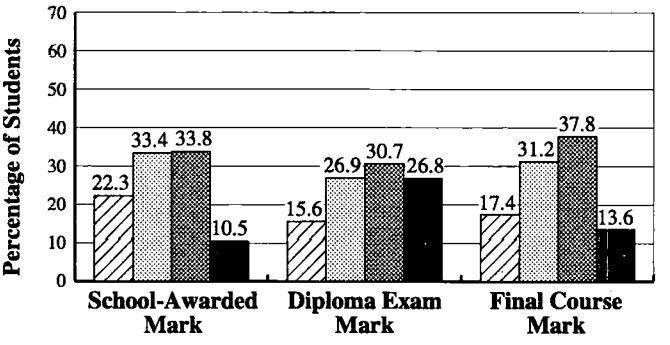


Figure 2-13

Mathematics 30
Distribution of A, B, C, and F for School, Examination, and Final Course Marks 1991-92 School Year



N = 19 065

Figure 2-14

Biology 30
Distribution of A, B, C, and F for Final Course Mark Three School Years

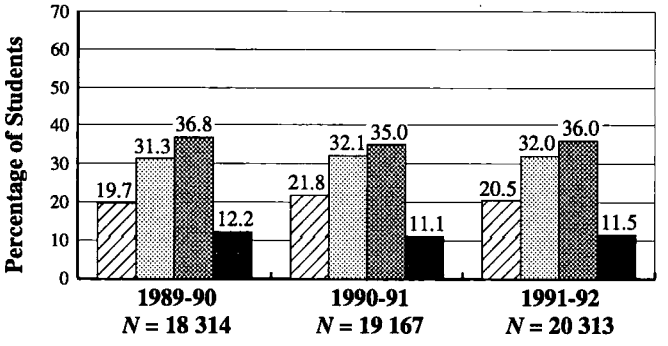
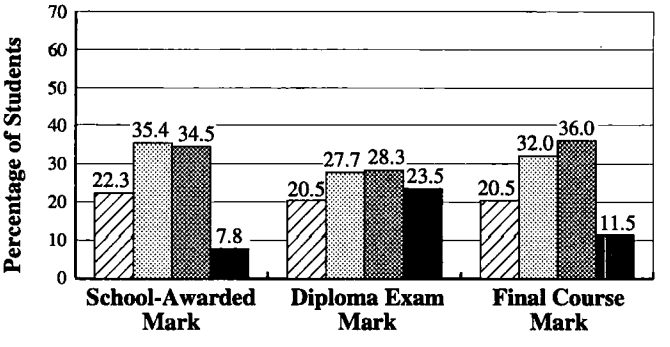


Figure 2-15

Biology 30
Distribution of A, B, C, and F for School, Examination, and Final Course Marks 1991-92 School Year



N = 20 313

Figure 2-16

Chemistry 30
Distribution of A, B, C, and F for Final Course Mark Three School Years

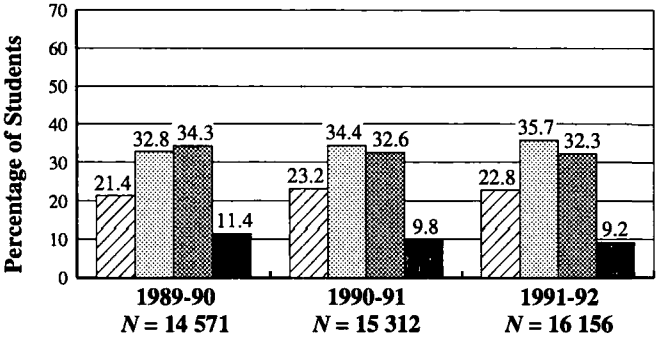
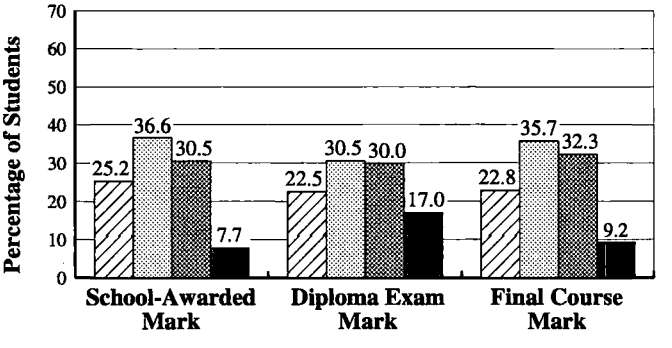


Figure 2-17

Chemistry 30
Distribution of A, B, C, and F for School, Examination, and Final Course Marks 1991-92 School Year



N = 16 156

A is 80-100% B is 65-79% C is 50-64% F is 0-49%

A is 80-100% B is 65-79% C is 50-64% F is 0-49%

Figure 2-18

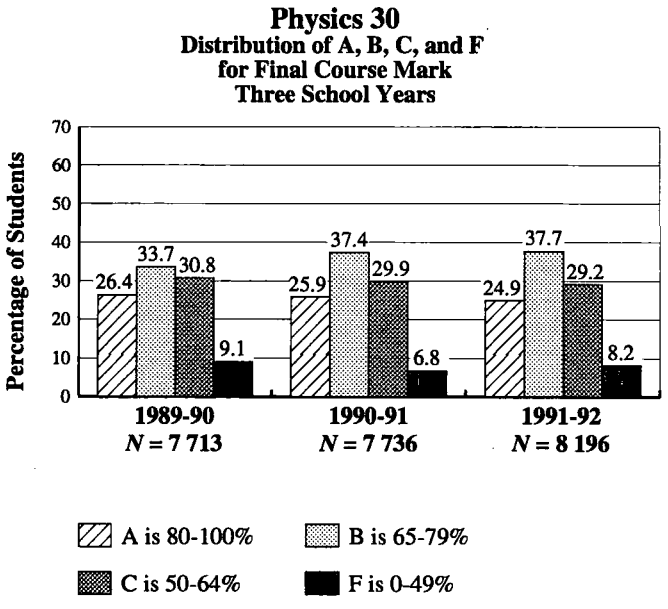
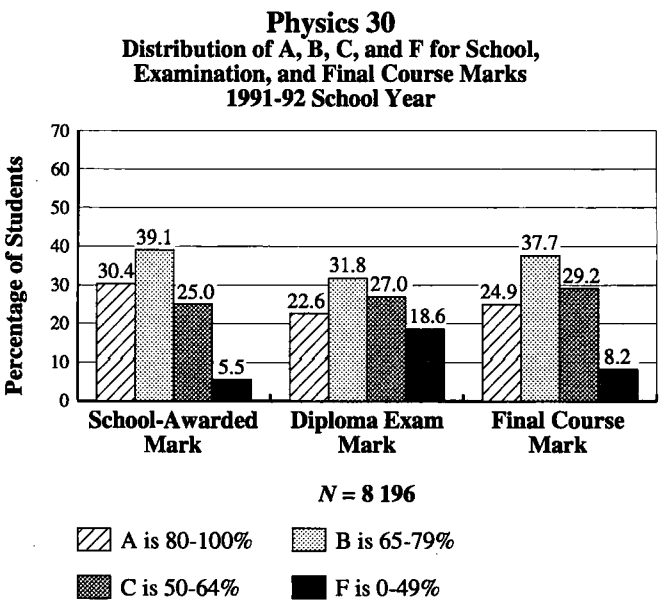


Figure 2-19



For each diploma examination course, what is the correlation between examination marks and school-awarded marks?

Table 2-1 presents the correlation between diploma examination marks and school-awarded marks for each diploma examination course.

The two marks represent two separate assessments of achievement, each based on an overlapping yet different set of curricular objectives. To a large degree, these objectives are similar; however, there is a necessary degree of difference.

The diploma examinations are limited to measuring achievement of objectives that can be effectively assessed by paper and pencil tests. School assessments also measure achievement of additional objectives such as laboratory skills in the sciences, or speaking and listening skills in English. Therefore, these correlations are expected to be positive and relatively high, but less than 1.0.

Other factors that contribute to the less-than-perfect correlations include variations among teachers' assessment practices, the longer time span of school-based assessment, the effect of failure to complete assignments, and the individual student's approach to the different types of assessment.

Table 2-1

Correlation of Diploma Examination Marks and School-Awarded Marks by Course 1991-92 School Year

Course	Number of Students	Correlation Coefficient
English 30	24 027	0.636
English 33	9 254	0.361
Social Studies 30	20 804	0.775
Français 30	84	0.660
Mathematics 30	19 065	0.773
Biology 30	20 313	0.813
Chemistry 30	16 156	0.800
Physics 30	8 196	0.795

Section 3
Results by Gender

This section of the report provides separate results for males and females. These questions will be answered:

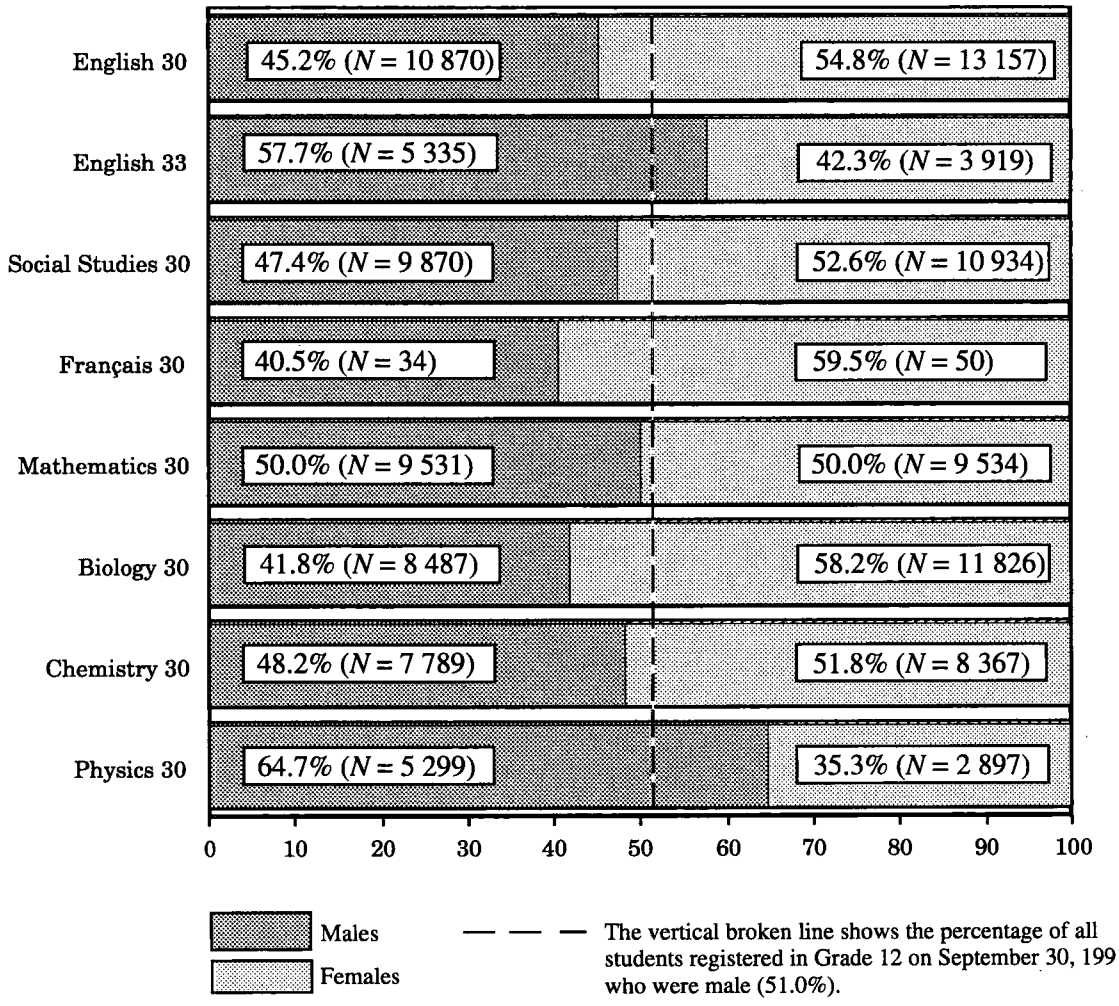
- What proportion of males and females registered in Grade 12 write diploma examinations?
- Is the percentage of males and females who meet the standards the same in each course?
- Are males and females awarded similar school marks? Is the pattern the same for diploma examination marks?

What proportion of males and females registered in Grade 12 write diploma examinations?

Figure 3-1 shows that when compared to the percentage of males registered in Grade 12, a smaller proportion of males wrote diploma examinations in all courses except for English 33 and Physics 30. To qualify for an Advanced High School Diploma in Alberta, a student must receive credit in English 30. That more females are writing English 30 examinations and more males are writing English 33 examinations suggests that males are less likely than females to be seeking an advanced diploma. This might account for the under-representation of males in most diploma examination courses.

Figure 3-1

Ratio of Males to Females Writing Diploma Examinations
1991-92 School Year



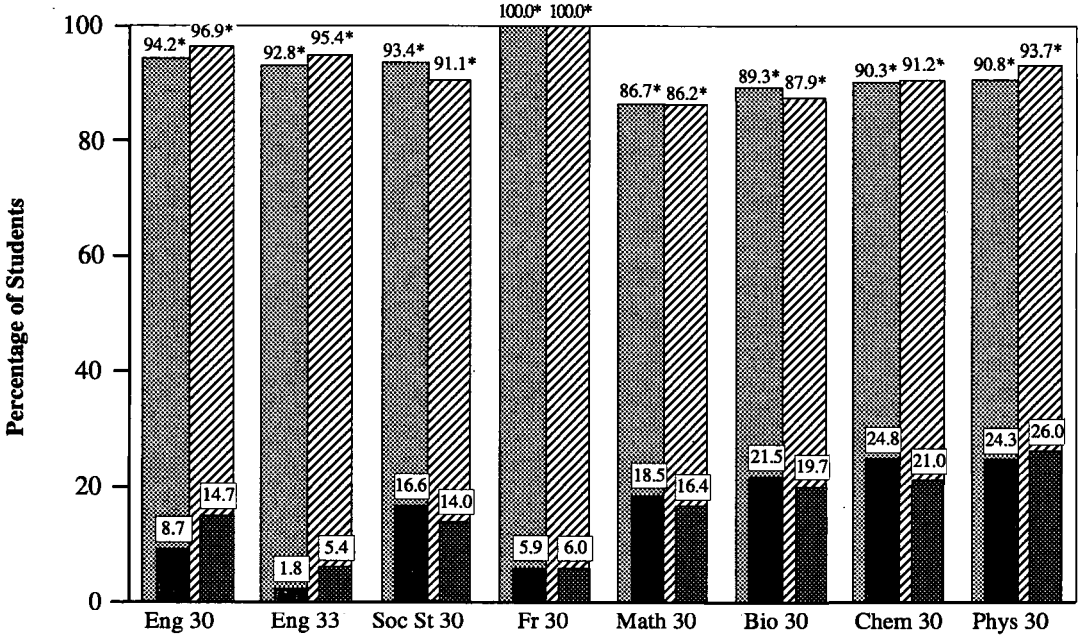
Is the percentage of males and females who meet the standards the same in each course?

Figure 3-2 shows that a higher percentage of males achieved the *standard of excellence* or higher in their final course marks for mathematics/sciences courses, with the exception of Physics 30.

A higher percentage of females achieved the *standard of excellence* or higher in their final course marks for humanities courses, with the exception of Social Studies 30. The percentage of females who achieved the *acceptable standard* or higher was the same or exceeded the percentage of males in all courses except for Social Studies 30, Mathematics 30, and Biology 30.

Figure 3-2

Percentage of Students Achieving Standards by Gender (Final Course Mark) 1991-92 School Year



***Students achieving the *acceptable standard* or higher (final course mark of 50% to 100%).**

Males Females

Students achieving the *standard of excellence* or higher (final course mark of 80% to 100%).

Males Females

Number of Students

Course	Meeting or Exceeding the Acceptable Standard			Meeting or Exceeding the Standard of Excellence		
	Male	Female	Total	Male	Female	Total
English 30	10 242	12 749	22 991	951	1 936	2 887
English 33	4 953	3 739	8 692	97	210	307
Social Studies 30	9 215	9 958	19 173	1 636	1 533	3 169
Français 30	34	50	84	2	3	5
Mathematics 30	8 261	8 217	16 478	1 759	1 567	3 326
Biology 30	7 578	10 391	17 969	1 826	2 331	4 157
Chemistry 30	7 033	7 632	14 665	1 932	1 755	3 687
Physics 30	4 812	2 714	7 256	1 289	754	2 043

Are males and females awarded similar school marks? Is the pattern the same for diploma examination marks?

Table 3-1 shows the results of a study of the school-awarded marks and diploma examination marks for males and females. When averages in school-awarded marks are compared, females achieved similar or higher averages than males in all courses. When the school-awarded A, B, C and F are examined, a similar or smaller percentage of females achieved an F in all courses. However, a smaller percentage of females than males achieved an A in Français 30, Mathematics 30, and Chemistry 30.

In diploma examination marks, females achieved lower averages in Social Studies 30, Français 30, Mathematics 30, Biology 30, and Chemistry 30. On diploma examinations, a smaller percentage of females achieved an A in all courses except for English 30, English 33, Français 30, and Physics 30, and a larger percentage of females achieved an F in all courses except for English 30, English 33, Français 30, and Physics 30.

Noteworthy differences between males and females occurred in English 30 and in Social Studies 30. In English 30, 21.5% of females achieved an A based on school-awarded marks but only 12.1% of males achieved an A. On the diploma examination the difference narrowed, with 12.6% of females and 8.8% of males achieving an A. In Social Studies 30, even though similar percentages of males and females achieved an F in school-awarded marks, 23% of the females compared with 14.3% of males achieved an F in diploma examination marks.

Table 3-1

Provincial Percentage Distribution of A, B, C, and F, Average, and Standard Deviation* of Scores
1991-92 School Year

Course	School-Awarded Mark			Diploma Exam Mark			Final Course Mark		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
English 30									
A(80-100%)	17.2	12.1	21.5	10.9	8.8	12.6	12.0	8.7	14.7
B(65-79%)	40.5	37.2	43.1	37.7	35.7	39.5	41.4	38.0	44.2
C(50-64%)	34.8	40.3	30.4	40.4	43.0	38.2	42.3	47.5	38.0
F(0-49%)	7.5	10.4	5.0	11.0	12.5	9.7	4.3	5.8	3.1
Average (%)	66.5	63.9	68.6	64.2	63.1	65.2	65.8	64.0	67.4
Standard Deviation (%)	12.6	12.7	12.1	12.0	11.8	12.0	11.1	10.9	10.9
English 33									
A(80-100%)	5.3	3.1	8.4	5.5	4.5	6.8	3.3	1.8	5.4
B(65-79%)	33.5	27.3	41.7	40.8	39.6	42.4	37.0	32.0	43.7
C(50-64%	47.8	52.8	41.1	41.0	42.7	38.7	53.6	59.0	46.3
F(0-49%)	13.4	16.8	8.8	12.7	13.2	12.1	6.1	7.2	4.6
Average (%)	60.7	58.5	63.7	62.7	62.2	63.5	62.2	60.8	64.1
Standard Deviation (%)	11.5	11.2	11.3	11.2	11.1	11.4	9.5	9.1	9.7
Social Studies 30									
A(80-100%)	20.3	20.1	20.5	13.5	15.8	11.3	15.2	16.6	14.0
B(65-79%)	38.3	38.6	37.9	33.0	36.7	29.7	36.9	38.9	35.1
C(50-64%	35.2	34.8	35.7	34.6	33.2	36.0	40.1	37.9	42.0
F(0-49%)	6.2	6.5	5.9	18.9	14.3	23.0	7.8	6.6	8.9
Average (%)	67.4	67.3	67.4	62.8	64.8	61.0	65.4	66.4	64.5
Standard Deviation (%)	12.6	12.7	12.5	14.3	13.9	14.5	12.7	12.5	12.8
Français 30**									
A(80-100%)	20.2	23.5	18.0	6.0	5.9	6.0	6.0	5.9	6.0
B(65-79%)	54.8	50.0	58.0	45.2	50.0	42.0	57.1	58.8	56.0
C(50-64%	22.6	20.6	24.0	42.8	38.2	46.0	36.9	35.3	38.0
F(0-49%)	2.4	5.9	0.0	6.0	5.9	6.0	0.0	0.0	0.0
Average (%)	70.4	69.6	70.8	65.6	66.5	64.9	68.2	68.4	68.1
Standard Deviation (%)	9.0	10.2	8.2	10.4	10.5	10.4	8.9	9.6	8.5

(Continued)

*Standard deviation is an indication of the amount of variation in a distribution. About 68% of the students' marks will fall within plus or minus one "standard deviation" of the average mark. On the English 30 Diploma Examination, for example, 68% of students who wrote the examination scored between 52.2% and 76.2%.

**Because very few students wrote the Français 30 examinations, results must be interpreted with caution.

Table 3-1 (*continued*)

Course	School-Awarded Mark Total	Male	Female	Diploma Exam Mark Total	Male	Female	Final Course Mark Total	Male	Female
Mathematics 30									
A(80-100%)	22.3	22.7	21.9	15.6	17.2	13.9	17.4	18.5	16.4
B(65-79%)	33.4	32.3	34.6	26.9	27.4	26.4	31.2	31.2	31.2
C(50-64%	33.8	33.7	33.9	30.7	30.7	30.7	37.8	37.0	38.6
F(0-49%)	10.5	11.3	9.6	26.8	24.7	29.0	13.6	13.3	13.8
Average (%)	66.8	66.6	66.9	61.0	61.9	60.1	64.3	64.7	63.9
Standard Deviation (%)	14.6	14.9	14.2	17.1	17.2	16.9	14.9	15.1	14.7
Biology 30									
A(80-100%)	22.3	21.4	23.0	20.5	22.8	18.8	20.5	21.5	19.7
B(65-79%)	35.4	34.4	36.2	27.7	28.5	27.1	32.0	31.9	32.1
C(50-64%	34.5	35.3	33.8	28.3	27.9	28.6	36.0	35.9	36.1
F(0-49%)	7.8	8.9	7.0	23.5	20.8	25.5	11.5	10.7	12.1
Average (%)	67.5	66.9	67.9	63.2	64.6	62.2	65.7	66.2	65.4
Standard Deviation (%)	13.4	13.7	13.2	17.3	17.0	17.4	14.7	14.7	14.7
Chemistry 30									
A(80-100%)	25.2	26.2	24.4	22.5	25.1	20.0	22.8	24.8	21.0
B(65-79%)	36.6	35.0	38.0	30.5	29.3	31.7	35.7	33.9	37.3
C(50-64%	30.5	30.1	30.8	30.0	28.8	31.0	32.3	31.6	32.9
F(0-49%)	7.7	8.7	6.8	17.0	16.8	17.3	9.2	9.7	8.8
Average (%)	68.6	68.5	68.6	65.6	66.2	65.0	67.5	67.8	67.2
Standard Deviation (%)	13.9	14.3	13.4	16.3	16.8	15.9	14.4	14.8	13.9
Physics 30									
A(80-100%)	30.4	28.9	33.3	22.6	22.4	23.2	24.9	24.3	26.0
B(65-79%)	39.1	37.6	41.7	31.8	31.7	31.9	37.7	36.8	39.4
C(50-64%	25.0	26.9	21.6	27.0	26.1	28.7	29.2	29.7	28.3
F(0-49%)	5.5	6.6	3.4	18.6	19.8	16.2	8.2	9.2	6.3
Average (%)	71.1	70.2	72.8	65.3	64.9	66.0	68.6	68.0	69.7
Standard Deviation (%)	13.4	13.8	12.5	16.7	17.0	16.0	14.2	14.6	13.5

Summary

There appear to be gender differences in the marks obtained for the diploma examination courses. A larger proportion of females than males are writing the diploma examinations. This suggests that more females are choosing to obtain an advanced diploma. Although the achievement of females is similar to or higher than the achievement of males in school-awarded marks, their achievement on many of the diploma examinations is below the achievement of males. Since individual jurisdiction results will show patterns that differ from the province-wide results, school boards are encouraged to explore gender differences in their own jurisdictions.

The data presented in this section show gender differences to a greater or lesser degree in all diploma examination courses. The presence of a gender difference provides a warning that some individuals may not be achieving to their maximum potential. Schools should consider this issue carefully within their own contexts.

The Student Evaluation Branch is preparing a special report focusing on gender differences. The impetus for this report is the observed gender difference of over six percent on the multiple-choice component of the Social Studies 30 Diploma Examination in favour of males. This gender difference is consistently found across sittings and years, and is more than twice the size of the gender differences on the multiple-choice components of the other diploma examinations. A gender difference does not appear on the written-response component of the Social Studies 30 examination. Staff at the Student Evaluation Branch have conducted several studies to examine factors which might be related to gender differences. The special report will discuss the results from these studies. It should be available to schools during 1993.

We welcome any comments regarding observations or thoughts you have on gender differences in achievement. If you would like to share your thoughts with us, please contact Elana Scraba, Assistant Director, Humanities Diploma Examination Program, at 427-0010 or write to her c/o Student Evaluation Branch, Alberta Education, 11160 Jasper Avenue, Edmonton, Alberta, T5K 0L2.

Section 4
Results for Population Subgroups

The majority of students who wrote the 1991-92 diploma examinations took the course in school as regular students; the second largest group were mature students* with current school-awarded marks. Results for students with both school-awarded marks and diploma examination marks are reported in sections 2 and 3 of this report. This section reports the results for all students, *including those with no school-awarded marks.*

This section will answer these questions:

- Does the percentage of mature students writing diploma examinations vary across courses?
- How does the performance of mature students with current school-awarded marks compare with the performance of regular students with current school-awarded marks?
- How does the performance of students with school marks brought forward compare with the results of students with current school-awarded marks?
- How does the performance of mature students challenging the examination compare with the performance of other mature student subgroups?
- For subgroups with both school-awarded marks and diploma examination marks, how does the diploma examination mark average compare with the school-awarded mark average?

Subgroup Definitions

Subgroups are defined by a combination of mature student status and school-awarded mark status. Students in all subgroups have a current diploma examination mark. The subgroups are:

- **Regular School**: students with a current school-awarded mark. This group is comprised of regular students and mature students:

  Regular Students: students without mature status who have a current school-awarded mark

  Mature Students: students with mature status who have a current school-awarded mark

- **Regular Students, School Mark Brought Forward**: regular students who do not have a current school-awarded mark but have an earlier school-awarded mark.

- **Mature Students, School Mark Brought Forward**: mature students who do not have a current school-awarded mark but have an earlier school-awarded mark.

- **Mature Students, Challenging Examination**: students with mature status who have no school-awarded mark.

- **Regular Students, No School Mark**: regular students who have no school-awarded mark.

Note:

1. Mature students "challenging" a diploma examination do not take the course but receive course credit if they pass the examination; regular students with no school-awarded mark receive no course credit.

2. When a mature student earns a diploma examination mark that is higher than that student's school-awarded mark, the diploma examination becomes the final mark; otherwise, the normal blending is done to calculate the final mark.

Excluded Groups

Not included in any of the groups are students who were exempted from all or part of the examination or who wrote a substantially different form of the examination because of special considerations. Students in English 30 or English 33 who, by special permission, wrote the two parts of the examination in two different examination sittings (e.g., January and June) are also excluded. Very few students fall into these categories.

Results

Three tables are provided for each diploma examination course. In the first table are the number and percentage of regular and mature students writing. In the second table are the number of students in each subgroup, their average diploma examination mark, and standard deviations of diploma examination marks for all subgroups. The third table provides data for subgroups with school-awarded marks. It includes the number of students in each subgroup, their average school-awarded mark, and the standard deviation of school-awarded marks for these subgroups.

* A student with mature status is one who, as of September 1 of the current school year, is 20 years of age or older *or* is 19 years of age and has been out of school for eight consecutive months since reaching the age of 18 *or* is the holder of a previously awarded Alberta high school diploma or equivalent (see the *Guide to Education, Senior High School Handbook, 1992-93,* page 75).

English 30: 1991-92 School Year

Achievement in English 30 by subgroups is compared in tables 4-1 to 4-3. About one in five English 30 students who wrote the 1991-92 diploma examinations had mature status.

Of students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average in diploma examination marks.

Mature students with school marks brought forward and regular students with no school marks achieved lower averages in diploma examination marks than regular school subgroups did.

Table 4-1

English 30
Status of Students Writing

Type	Number	Percentage
Regular Students	20 070	80.7
Mature Students	4 803	19.3
Total	24 873	100.0

Table 4-2

English 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	22 914	64.4	11.9
Regular Students	19 095	65.1	11.8
Mature Students	3 819	61.2	12.0
Regular Students, School Mark Brought Forward	858	62.2	11.8
Mature Students, School Mark Brought Forward	225	54.5	11.7
Mature Students, Challenging Examination	729	60.8	13.6
Regular Students, No School Mark	117	59.4	16.5

Table 4-3

English 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	22 914	66.5	12.6
Regular Students	19 095	66.9	12.5
Mature Students	3 819	64.6	12.8
Regular Students, School Mark Brought Forward	858	66.6	13.2
Mature Students, School Mark Brought Forward	255	66.0	11.0

*For an explanation of standard deviation, please see the footnote to Table 3-1.

English 33: 1991-92 School Year

Achievement in English 33 by subgroups is compared in tables 4-4 to 4-6. About one in six English 33 students who wrote the 1991-92 diploma examinations had mature status.

Of students with current school-awarded marks, mature students achieved a higher average in school-awarded marks than regular students did; however, regular students achieved a slightly higher average on the diploma examination than mature students did.

Among all subgroups, mature students challenging examinations achieved the highest average in diploma examination marks. Subgroups with school marks brought forward achieved much lower averages in diploma examination marks compared with the other subgroups.

Table 4-4

English 33
Status of Students Writing

Type	Number	Percentage
Regular Students	8 140	82.8
Mature Students	1 690	17.2
Total	9 830	100.0

Table 4-5

English 33
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	9 058	62.9	11.1
Regular Students	7 879	62.9	10.6
Mature Students	1 179	62.6	14.0
Regular Students, School Mark Brought Forward	156	56.4	11.6
Mature Students, School Mark Brought Forward	40	45.0	12.7
Mature Students, Challenging Examination	471	66.1	14.0
Regular Students, No School Mark	105	65.8	11.3

Table 4-6

English 33
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	9 058	60.8	11.5
Regular Students	7 879	60.2	11.1
Mature Students	1 179	64.7	13.1
Regular Students, School Mark Brought Forward	156	53.7	12.5
Mature Students, School Mark Brought Forward	40	58.1	10.0

*For an explanation of standard deviation, please see the footnote to Table 3-1.

Social Studies 30: 1991-92 School Year

Achievement in Social Studies 30 by subgroups is compared in tables 4-7 to 4-9. About one in ten Social Studies 30 students who wrote the 1991-92 diploma examinations had mature status.

Of students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average on the examination. Subgroups with no current school-awarded marks achieved much lower averages in diploma examination marks than regular school subgroups did.

Table 4-7

Social Studies 30
Status of Students Writing

Type	Number	Percentage
Regular Students	18 964	89.7
Mature Students	2 174	10.3
Total	21 138	100.0

Table 4-8

Social Studies 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	20 344	63.0	14.3
Regular Students	18 475	63.3	14.3
Mature Students	1 869	60.2	14.0
Regular Students, School Mark Brought Forward	390	53.7	13.9
Mature Students, School Mark Brought Forward	70	51.9	12.8
Mature Students, Challenging Examination	235	54.2	16.6
Regular Students, No School Mark	99	55.1	16.0

Table 4-9

Social Studies 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	20 344	67.5	12.6
Regular Students	18 475	67.7	12.5
Mature Students	1 869	66.0	12.7
Regular Students, School Mark Brought Forward	390	60.1	13.4
Mature Students, School Mark Brought Forward	70	64.8	10.8

*For an explanation of standard deviation, please see the footnote to Table 3-1.

Français 30: 1991-92 School Year

Achievement in Français 30 by subgroups is compared in tables 4-10 to 4-12.

Because the total number of students who wrote the Français 30 diploma examination is very small, results should be interpreted with caution.

Table 4-10

Français 30
Status of Students Writing

Type	Number	Percentage
Regular Students	83	97.6
Mature Students	2	2.4
Total	85	100.0

Table 4-11

Français 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	84	65.6	10.4
Regular Students	83	65.4	10.4
Mature Students	1	75.0	N/A
Regular Students, School Mark Brought Forward	0	N/A	N/A
Mature Students, School Mark Brought Forward	0	N/A	N/A
Mature Students, Challenging Examination	1	15.0	N/A
Regular Students, No School Mark	0	N/A	N/A

Table 4-12

Français 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	84	70.4	9.0
Regular Students	83	70.2	9.0
Mature Students	1	82.0	N/A
Regular Students, School Mark Brought Forward	0	N/A	N/A
Mature Students, School Mark Brought Forward	0	N/A	N/A

*For an explanation of standard deviation, please see the footnote to Table 3-1.

Mathematics 30: 1991-92 School Year

Achievement in Mathematics 30 by subgroups is compared in tables 4-13 to 4-15. About one in five Mathematics 30 students who wrote the 1991-92 diploma examinations had mature status.

Of students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average on the diploma examination while mature students challenging examinations achieved the lowest average.

Table 4-13

Mathematics 30
Status of Students Writing

Type	Number	Percentage
Regular Students	15 418	79.3
Mature Students	4 029	20.7
Total	19 447	100.0

Table 4-14

Mathematics 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	18 577	61.1	17.0
Regular Students	14 988	62.0	17.1
Mature Students	3 589	57.1	16.2
Regular Students, School Mark Brought Forward	347	59.2	18.9
Mature Students, School Mark Brought Forward	141	48.0	15.2
Mature Students, Challenging Examination	299	44.3	19.3
Regular Students, No School Mark	83	49.0	19.2

Table 4-15

Mathematics 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	18 577	66.7	14.6
Regular Students	14 988	67.3	14.5
Mature Students	3 589	64.3	14.6
Regular Students, School Mark Brought Forward	347	68.9	16.4
Mature Students, School Mark Brought Forward	141	64.7	14.7

*For an explanation of standard deviation, please see the footnote to Table 3-1.

Biology 30: 1991-92 School Year

Achievement in Biology 30 by subgroups is compared in tables 4-16 to 4-18. About one in five Biology 30 students who wrote the 1991-92 diploma examinations had mature status.

Of students with current school-awarded marks, mature students achieved a higher average in school-awarded marks than regular students did. These two subgroups achieved the same average in diploma examination marks.

Among all subgroups, students with current school-awarded marks achieved the highest average on the diploma examination.

Mature students with school marks brought forward achieved the lowest average on diploma examination marks.

Table 4-16

Biology 30
Status of Students Writing

Type	Number	Percentage
Regular Students	16 896	81.2
Mature Students	3 914	18.8
Total	20 810	100.0

Table 4-17

Biology 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	19 827	63.4	17.3
Regular Students	16 468	63.4	17.4
Mature Students	3 359	63.4	16.7
Regular Students, School Mark Brought Forward	342	56.1	16.8
Mature Students, School Mark Brought Forward	144	50.2	13.0
Mature Students, Challenging Examination	411	57.1	19.0
Regular Students, No School Mark	86	52.4	19.1

Table 4-18

Biology 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	19 827	67.6	13.4
Regular Students	16 468	67.2	13.4
Mature Students	3 359	69.4	13.3
Regular Students, School Mark Brought Forward	342	62.7	13.3
Mature Students, School Mark Brought Forward	144	63.6	12.1

*For an explanation of standard deviation, please see the footnote to Table 3-1.

Chemistry 30: 1991-92 School Year

Achievement in Chemistry 30 by subgroups is compared in tables 4-19 to 4-21. About one in five Chemistry 30 students who wrote the 1991-92 diploma examinations had mature status.

Of students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average in diploma examination marks.

Subgroups with no current school marks, except regular students with school marks brought forward, achieved much lower averages than regular school subgroups did.

Table 4-19

Chemistry 30
Status of Students Writing

Type	Number	Percentage
Regular Students	13 264	80.8
Mature Students	3 142	19.2
Total	16 406	100.0

Table 4-20

Chemistry 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	15 810	65.7	16.3
Regular Students	12 969	66.0	16.4
Mature Students	2 841	64.1	15.6
Regular Students, School Mark Brought Forward	258	64.7	16.3
Mature Students, School Mark Brought Forward	88	50.7	15.3
Mature Students, Challenging Examination	213	54.1	20.4
Regular Students, No School Mark	37	53.0	18.9

Table 4-21

Chemistry 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	15 810	68.6	13.9
Regular Students	12 969	68.8	13.9
Mature Students	2 841	67.8	13.8
Regular Students, School Mark Brought Forward	258	68.7	13.9
Mature Students, School Mark Brought Forward	88	64.4	12.1

*For an explanation of standard deviation, please see the footnote to Table 3-1.

Physics 30: 1991-92 School Year

Achievement in Physics 30 by subgroups is compared in tables 4-22 to 4-24. About one in six Physics 30 students who wrote the 1991-92 diploma examinations had mature status.

For students with current school-awarded marks, regular students achieved higher averages in both school-awarded marks and diploma examination marks than mature students did.

Among all subgroups, regular students with current school-awarded marks achieved the highest average on the diploma examination.

Subgroups with no current school marks, except regular students with school marks brought forward, achieved much lower averages in diploma examination marks than subgroups with current school marks did.

Table 4-22

Physics 30
Status of Students Writing

Type	Number	Percentage
Regular Students	6 837	81.9
Mature Students	1 509	18.1
Total	8 346	100.0

Table 4-23

Physics 30
Diploma Examination Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	8 026	65.4	16.7
Regular Students	6 690	65.9	16.8
Mature Students	1 336	62.9	15.6
Regular Students, School Mark Brought Forward	118	63.1	16.6
Mature Students, School Mark Brought Forward	52	56.3	16.9
Mature Students, Challenging Examination	121	50.9	21.1
Regular Students, No School Mark	29	55.4	22.7

Table 4-24

Physics 30
School-Awarded Marks for Population Subgroups

Subgroup	Number of Students	Average	Standard Deviation*
All Regular School	8 026	71.1	13.4
Regular Students	6 690	71.6	13.3
Mature Students	1 336	68.9	13.7
Regular Students, School Mark Brought Forward	118	71.1	13.8
Mature Students, School Mark Brought Forward	52	70.3	12.9

*For an explanation of standard deviation, please see the footnote to Table 3-1.

Summary

In this summary of subgroup results, the data for Français 30 are not included because of the small number of students who wrote the examination.

Does the percentage of mature students writing diploma examinations vary across courses?

In 1991-92, the percentage of mature students writing examinations ranged from approximately 10% in Social Studies 30 to 21% in Mathematics 30. The large percentage of mature students writing the Mathematics 30 examination could, in part, be related to the large number of students who chose to rewrite the Mathematics 30 examination.

How does the performance of mature students with current school-awarded marks compare with the performance of regular students with current school-awarded marks?

In 1991-92, average marks on diploma examinations for regular students with current school-awarded marks was the same as or higher than the averages for mature students with current school-awarded marks. Regular students with current school-awarded marks achieved the highest averages of all subgroups, except in English 33 and Biology 30.

How does the performance of students with school marks brought forward compare with the results of students with current school-awarded marks?

On the 1992 diploma examinations, regular students with school marks brought forward achieved lower averages in all courses compared to regular students with current school-awarded marks.

Mature students' marks followed a similar trend. Mature students with school marks brought forward did not do as well as mature students with current school-awarded marks.

How does the performance of mature students challenging the examination compare with the performance of other mature student subgroups?

In English 33, mature students challenging the diploma examination did better than other mature students. However, this subgroup did not do as well as other mature students in Mathematics 30 and Physics 30.

For subgroups with both school-awarded marks and diploma examination marks, how does the diploma examination mark average compare with the school-awarded mark average?

All subgroups had higher averages in school-awarded marks than in diploma examination marks, with the exception of English 33. In English 33, regular students with current school-awarded marks and regular students with school marks brought forward achieved higher averages in diploma examination marks than they did in school-awarded marks. For all courses, the largest difference between school-awarded marks and diploma examination marks was observed for mature students with school marks brought forward. For this subgroup, in all courses, the diploma examination mark average was more than 10% lower than the school-awarded mark average. In Mathematics 30, the difference between school-awarded and diploma examination averages was over 15% for this subgroup.

Section 5
Special Study: Participation Rates in Diploma Examination Courses

Students choose which diploma examination course to take. Their choices depend on plans, interests, previous achievement, and advice from parents, other students, teachers, school counsellors, or administrators. School or jurisdiction policy may also restrict students' choices.

When school administrators and teachers in Alberta are provided with detailed reports for each examination showing results for students in their school or jurisdiction and in the province, they are advised to take care when comparing school and provincial results. Local variations, such as how many students in a school take a particular course, must be taken into account. If only the higher-achieving students take a course, those students will likely have higher achievement. Therefore, information about participation rates in each course can help educators interpret school and jurisdiction results.

The percentage of students taking a particular course out of those who **could** take the course is called the **participation rate.**

The purpose of this special study was to produce participation rates for use by schools within the context of provincial data. Specifically, we wanted to answer these questions:

- What were the participation rates for diploma examination courses in Alberta in the 1991-92 school year?
- How much did participation rates vary among Alberta schools for diploma examination courses in the 1991-92 school year?
- Did variations in participation rates have any relationship to achievement on the diploma examinations as reported to the schools?

Defining Participation

The general definition, *the percentage of students taking a particular course out of those who could take the course* requires further specification before it can be applied. We must also specify how we count the number of students taking the course and how we count the number of students who could be taking the course.

Since we wanted to study participation rates relative to examination results, we had ensure that the analysis was based on students who are representative of a definable and coherent population. The typical student attends a public or separate high school in his or her jurisdiction after completing junior high school, along with other students who are from the same community and are approximately the same age. Some students will attend private schools; these students will be selected in various ways before entering the school. Other students will return to school after an absence of some time; the enrolment of some schools will consist mainly of this type of student. These adult students will have selected courses to meet individual needs that are different from those of the typical student. Participation rates in private schools and schools dealing primarily with adult students have quite a different meaning than participation rates in schools where most students fall into the typical pattern.

For this study, therefore, private schools were excluded, as were schools in which more than half of the students had mature status. (For a definition of mature status, see Section 4.) In most schools, fewer than 30% of Grade 12 students have mature status; in almost all of the remaining schools, at least 60% of students have mature status. Also excluded were schools not receiving grants. Two of the three base figures for calculating participation rates (discussed later) use enrolment figures based on per pupil grants; without this information, the schools could not be included. This restriction removed three schools not already excluded, with about 15 Grade 12 students among them.

The exclusion of private schools removed 55 schools and 1 760 students from the analysis; the exclusion of schools with primarily adult students removed 54 schools and 3 467 students. Since adult schools and private schools overlap, a total of 107 schools with 4 316 grant-supported Grade 12 students were excluded. **There were 279 schools with 38 758 grant-supported Grade 12 students in the population used for the analysis of participation rates.**

If a student withdrew from a course and did not receive a final mark (passing or failing), the course could not be included in the study, as no information was available on students who withdrew from courses. If a student participated in a course in the 1990-91 school year and was taking it again in 1991-92, the student is not considered to have participated in the course for the 1991-92 school year. Courses taken from the Alberta Distance Learning Centre were also excluded, as the ADLC does not fit the definition of a typical school given earlier. Courses taken by private study were excluded, as no school is involved. Participation rates for Français 30 were not calculated because of the restricted availability of the course.

After applying these exclusions, we calculated the number of students completing each diploma examination course (but not repeating the course from 1990-91) in each included school. To convert these counts to participation rates, we then had to establish the number of Grade 12 students in each school in the 1991-92 school year. Three different base figures were selected. Each has strengths and weaknesses.

Grade 12 September Enrolment

The first base figure is the September 30, 1991, Grade 12 enrolment reported for grants purposes. For the province, this figure is **279** schools and **38 758** students. The strength of this figure is

that it is an officially reported count of Grade 12 students. The weakness is that it includes students in their second, third, or a later year of Grade 12. The proportion of returning Grade 12 students varies from school to school and year to year. The special study in the 1990-91 *Diploma Examination Program Annual Report* indicates that more than one in five students take more than one year in Grade 12; of these students, one in three do not rewrite any diploma examinations. Returning students will reduce participation rates when the Grade 12 grants enrolment figure is used. For some uses of participation rates, this situation will result in underestimates, especially considering that, for this study, students repeating a course are not counted as participants in that course.

Grade 11 Previous September Enrolment

The second base figure used is the September 30, 1990, Grade 11 enrolment reported for grants purposes. For the province, this figure is **31 065** students. Usually students are counted in Grade 11 enrolments only once, in their second year of high school. Typically, these students will return to the same school the following year. However, some of them will withdraw from school. This figure will also result in underestimation of participation rates, although usually less than the Grade 12 figure. For schools with a population that is more transient than usual, perhaps in communities that are growing or contracting in size, figures based on the preceding year may overestimate or underestimate participation rates.

Grade 12 First-Time English Completions

The third base figure used is the total number of students completing either English 30 or English 33 for the first time. (Students taking both in the year are counted only once.) For the province, this figure is **26 692** students. All students must receive credit in either English 30 or English 33 to get a high school diploma. The first year taking of one of these courses can perhaps be defined as the first Grade 12 year for the purpose of analysis. The weakness of this figure is that some students may withdraw from English but complete another diploma examination course. These students would count toward the participation rate without being included in the base figure, resulting in a slight overestimate of participation rates. Other students will begin the year, but fail to complete any diploma examination courses.

What were the participation rates for diploma examination courses in Alberta in the 1991-92 school year?

Table 5-1 shows the provincial participation rates. Similar tables showing school participation rates have been sent to schools.

Each of the three rates gives a slightly different perspective on provincial participation rates. The rates based on Grade 12 September enrolment indicate what proportion of students currently in Grade 12 completed a course for the first time. The rates based on the previous year's Grade 11 enrolment indicate what proportion of students from Grade 11 go on to complete each course. The rates based on first-time Grade 12 English completion indicate what proportion of students include each course in their Grade 12 program. As explained earlier, each rate is subject to errors and requires cautious interpretation. The rates describe only students in schools included in the population, schools that are publicly funded and publicly accessible, the majority of whose students are following an uninterrupted program leading to a high school diploma. There are 279 schools meeting these criteria. English 30 has the highest participation rate. The sum of the English 30 and English 33 participation rates based on first-time Grade 12 English completion is greater than 100% because some students take both English 30 and English 33. They are counted only once for completion but separately for course participation. The participation rates based on first-time Grade 12 English completion indicate that about one student in four includes Physics 30, the course with the lowest participation rate, in his or her program; nearly half of the students take Chemistry 30.

How much did participation rates vary among Alberta schools for diploma examination courses in the 1991-92 school year?

Figures 5-1 to 5-3 show the variation in participation rates for each of the three base figures for Alberta schools. **The figures are based on 203 schools; those schools with fewer than 20 students completing English 30 or English 33 for the first time were not included because rates for small numbers of students will vary widely with small changes in actual enrolment.** For example, a school with 10 Grade 12 students will have the participation rate for a course change by 10 percent for each student in the course.

The figures use the *box-and-whisker* format. The *box* shows the range of participation rates for the central 50% of schools; in this case, these are the

Table 5-1

Provincial Participation Rate in Percent
Diploma Examination Courses
1991-92 School Year

Course	Based on Grade 12 Enrolment 1991-92	Based on Grade 11 Enrolment 1990-91	Based on First-Time Grade 12 English Completion 1991-92
English 30	49.2	61.4	71.4
English 33	20.8	26.0	30.3
Social Studies 30	46.9	58.5	68.1
Mathematics 30	37.8	47.1	54.9
Biology 30	40.5	50.6	58.9
Chemistry 30	32.4	40.5	47.1
Physics 30	17.1	21.4	24.9

101 schools remaining when the 51 schools with the highest participation rates and the 51 schools with the lowest participation rates are ignored. The short horizontal line in the box shows the median rate (that of the 102nd school when the 203 schools are in order of participation rate). The vertical lines extending up and down from the boxes are the *whiskers*. The ends of the whiskers show the participation rates for schools at the 10th percentile and the 90th percentile. That is, the middle 80 percent of schools fall between the end of the top whisker and the end of the bottom whisker.

For example, in Figure 5-1, 80 percent of schools (with 20 or more students as defined earlier) had participation rates in English 30 between 35% and 69%; 10 percent of schools were higher and 10 percent of schools were lower. Half of schools had participation rates in English 30 between 43% and 61%; the school in the middle of the distribution had a participation rate of 51%.

Figure 5-1 shows that variation among schools in participation rates calculated using the September 30, 1991, Grade 12 enrolment is substantial in all diploma examination courses. Variation among schools in participation rates calculated using the September 30, 1990, Grade 11 enrolment, as shown in Figure 5-2, follows the same pattern as shown in Figure 5-1.

Participation rates based on first-time Grade 12 English completion, while higher than those based on the other enrolment data, follow the same pattern.

All three figures make it clear that participation rates do vary from school to school in all diploma examination courses. Variations can

Figure 5-1

Participation Rates
Based on September 1991 Grade 12 Enrolment

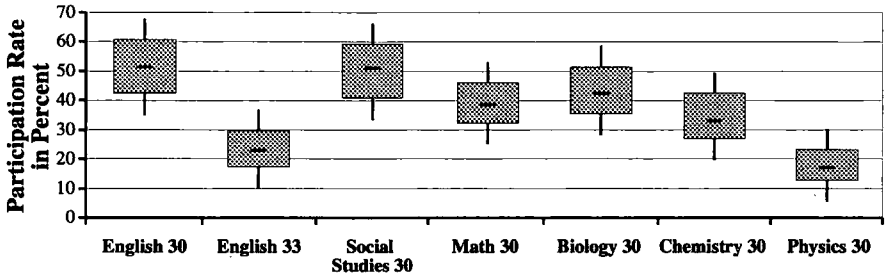


Figure 5-2

Participation Rates
Based on September 1990 Grade 11 Enrolment

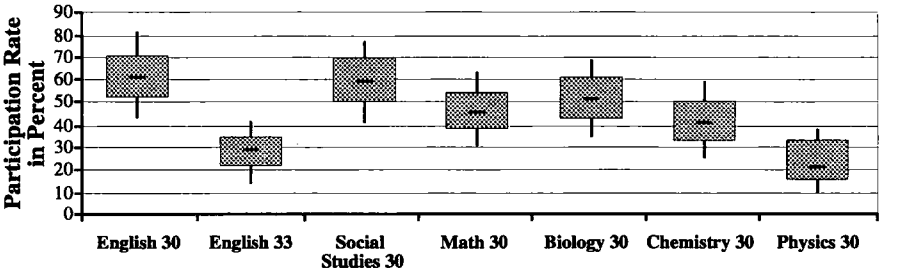
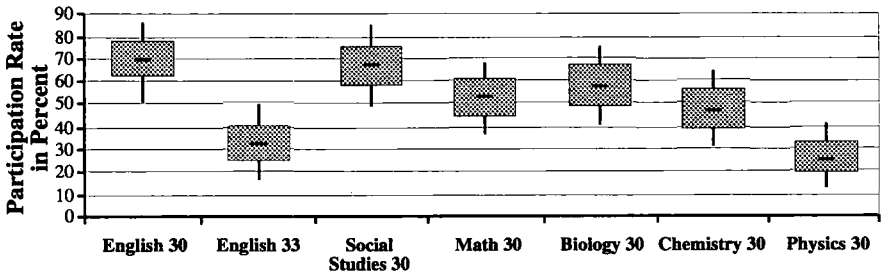


Figure 5-3

Participation Rates
Based on First-time 1991-92 Grade 12 English Completion



be as large as 18% among schools that still fall in the central part of the distribution. If these variations reflect different degrees of selection by ability, then the variations should result in differences in average achievement among schools. The higher the participation rate, the lower we would expect achievement to be (other things being equal).

Table 5-2 shows the values of the participation rates for schools at the 10th and 90th percentiles for each of the three rates for each diploma examination course as shown in Figures 5-1 to 5-3. This table will be useful for schools who wish to determine whether their participation rates fall within those of the central 80 percent of schools.

Table 5-2

10th and 90th Percentile Values
School Participation Rates

Course	Based on Grade 12 Enrolment 1991-92		Based on Grade 11 Enrolment 1990-91		Based on First-Time Grade 12 English Completion 1991-92	
	10th %tile	90th %tile	10th %tile	90th %tile	10th %tile	90th %tile
English 30	35.1	69.2	42.9	81.2	51.5	86.1
English 33	11.7	35.0	13.8	41.2	16.4	48.5
Social Studies 30	33.3	67.6	40.5	76.7	48.4	84.5
Mathematics 30	24.7	54.7	29.9	62.3	35.8	67.7
Biology 30	28.5	59.4	34.2	67.9	40.0	74.0
Chemistry 30	20.6	50.9	24.5	58.5	29.1	63.6
Physics 30	7.7	33.3	9.2	37.3	11.5	39.5

Did variations in participation rates have any relationship to achievement on the diploma examinations as reported to the schools?

The relationship between participation rates and examination results was looked at for all schools with 20 or more students enrolled in Grade 12 English for the first time. **A variety of analyses failed to show any consistent relationship between participation rates and achievement on the diploma examinations, except for Physics 30.**

When schools with Physics 30 participation rates greater than the provincial rate were compared with schools with Physics 30 participation rates less than the provincial rate, statistically significant differences were found in the percent of students passing the examination and in the average diploma examination mark. These differences were found using all three participation rates. Pass rates were slightly more than 5 percentage points lower for schools with higher participation rates. Schools with higher participation rates had average Physics 30 examination marks nearly 3 percentage points lower than schools with lower participation rates.

There is no obvious explanation for the lack of the expected relationship in courses other than Physics 30. The negative relationship, in which higher achievement is associated with lower participation, and vice versa, is one which is generally anticipated. This relationship would occur when students are selected for diploma examination courses entirely on the basis of prior assessment. Take, for example, two schools with equal resources and students with equal distributions of achievement. In one school, the top 80% of students take a given diploma examination course. In the other, the top 40% of students take the course. It would be expected that the school with the higher participation rate would have lower achievement, because more students who tend to achieve less well would be included in the school average.

The positive relationship, in which higher achievement is associated with higher participation, could also occur in some schools. Take, for example, two schools with *unequal* resources or programs whose students begin with equal distributions of achievement. In one school, with greater resources or better programs, 100 students enter Grade 10 in September 1989. Eighty of these students take (for example) Chemistry 10. Of these students, 75 succeed, and, well prepared, continue to Chemistry 20. Again, 65 succeed, and continue to Chemistry 30, a 65% participation rate. Since they have been well prepared by their Grade 10 and 11 courses, they have a high pass rate and class average in Chemistry 30.

The converse also occurs, where lower achievement is found with lower participation rates. In another school, with less adequate resources, 100 students enter Grade 10 in September 1989, and 80 take Chemistry 10. Of these, only 60 succeed, and continue, less well prepared, to Chemistry 20. Again, only 45 succeed, and continue to Chemistry 30, a 45% participation rate. Because of their weaker preparation, they have a low pass rate and class average in Chemistry 30. In this way, a lower participation rate is associated with lower achievement.

When schools of both types are analyzed together, the two expected relationships counterbalance each other, and no relationship emerges that would apply generally. Unless some way to distinguish between the two types of schools can be found, there is no way to test this hypothesis.

The results of this study indicate that schools interpreting diploma examination results should carefully consider the selection factors as well as the participation rate when estimating the effect of participation on their achievement expectations.

A higher participation rate alone does not provide sufficient reason for low achievement.

Suggestions for Interpreting School Participation Rates

The Student Evaluation Branch is sending reports on participation rates to each school. The same rates that are given for the province in Table 5-1 will be used. Private schools, schools with more than 50% of Grade 12 students having mature status, and schools not receiving grants were not included in the calculation of provincial participation rates. Although all schools receiving grants get reports, the data may not be useful to schools not included in the provincial participation rates.

School staff interpreting these reports should first decide which of the three base figures is most appropriate for their situation.

- Schools with small Grade 12 enrolment should treat all the figures with caution.

- Schools with high student turnover will find the rates based on Grade 11 enrolment of the previous year less useful.

- Schools whose proportion of students in second and later years of Grade 12 is different from the provincial proportion will have less use for the rates based on Grade 12 September enrolment, as will schools that have had unusually large numbers of students leave school or enter school after September 30.

- Most schools should find figures based on the first-time Grade 12 English completions useful. Exceptions would be schools with a large proportion of their Grade 12 English course enrolments consisting of Grade 11 (second high school year) students, and schools in which an unusually large proportion of students failed to complete Grade 12 English.

After choosing the most useful rate, educators can compare the school's participation rate for each course with the provincial rate.

- The types of schools included in the provincial rate must be considered. How do the characteristics of your school differ from the typical school, and how would these differences be expected to affect participation rates?

- Some characteristics to be considered are the variety of courses offered, the typical career plans of students, school expectations, and parental expectations.

After making appropriate adjustments, educators can determine how participation rates differ from expectations, and seek explanations for differences.

- Schools may wish to look more closely at courses that have a participation rate above the 90th percentile or below the 10th percentile.

- If rates in most courses are a consistent amount above or below the provincial rates, schools may wish to pay particular attention to courses which break that pattern.

Educators may also wish to look at the relationship between achievement and participation in their school, even though this study found no relationship in the provincial data except for Physics 30.

- Use annual data including all examination sittings.

- Schools interpreting diploma examination results should carefully consider the selection factors as well as the participation rate.

- A higher-than-average participation rate alone does not provide sufficient reason for lower-than-average achievement.

These interpretations may then lead to adjustments in local policy or practice.

Section 6
Achievement-Over-Time Studies

An important goal of Alberta Education is to answer the question:

Has student achievement, as measured by the diploma examinations, changed over the past few years?

In 1992, efforts to answer this question were restricted to an anchor test technique, which was first introduced in June 1989. Qualitative studies as used and reported in the *Diploma Examinations Program Annual Report, 1990-91*, were not conducted in 1991-92.

Multiple-choice anchor tests are designed and developed to be parallel to the multiple-choice component of each diploma examination. Anchor tests in diploma examination courses were implemented to address the problems experienced in measuring achievement over time through the re-administration of previously administered examinations.

Comparing achievement in two or more student groups of unknown ability requires some common measure. Because new examinations are developed each year, it was not possible to make direct comparisons of achievement from one year to the next. What was required, therefore, was a set of common questions having the same content and emphasis as the diploma examination, which could be administered yearly to a sample of students registered to write the diploma examination. We refer to this set of common questions as an 'anchor' test.

During the first year of the study, 1989, anchor tests were administered in English 30, English 33, and Social Studies 30. Anchor tests were not administered in Mathematics 30, Biology 30, Chemistry 30, and Physics 30 until June 1990. In each course, the anchor test was administered to samples of students who would be writing the upcoming diploma examination. The questions from these anchor tests were not released to the public and were administered again in the anchor tests of subsequent years. Following the administration and scoring of the diploma examinations, a student's anchor test mark was matched with his or her multiple-choice mark on a diploma examination.

The results of the sample of students writing the anchor test in each course were compared to the diploma examination results for these same students. The anchor tests, which contained identical items, could then be compared between two yearly administrations. These anchor tests were used to compare achievement on the multiple-choice component of the respective examinations.

Only regular students (i.e., students with current school-awarded and diploma examination marks) were used in the samples. Table 6.1 presents the number of students who wrote the anchor tests each year.

Equating Procedure

The main task, using this method, was to place the results of different tests on the same scale. A common method is to assign a baseline test and then express later scores in terms of (i.e., on the same scale as) that baseline test. For this study, the baseline test chosen for English 30, English 33, and Social Studies 30 was administered in June 1989. For Biology 30, Chemistry 30, Physics 30, and Mathematics 30, the baseline test chosen was administered in June 1990. A statistical procedure called linear equating was used to equate each current 1992 diploma examination with its baseline equivalent. The statistical procedure used the anchor tests and took into consideration the peculiarities of each sample, such as differing anchor test sample size and differing anchor test sample abilities. The equating procedure allowed for the expression of students' scores as if the students had written the baseline examination. That is, by applying the formula derived for English 30 to the mark of a student who wrote the June 1992 English 30 Diploma Examination, it was possible to estimate the mark the student would have received if that student had written the June 1989 examination. In this study, the equated mean mark for each subject was used to compare performance with the baseline year.

Table 6-1

Number of Students Writing the Anchor Tests

Course	1989	1990	1991	1992
English 30	360	319	297	352
English 33	264	298	249	114
Social Studies 30	634	464	303	378
Biology 30	N/A	405	286	499
Chemistry 30	N/A	160	291	327
Physics 30	N/A	74	N/A	224
Mathematics 30	N/A	391	N/A	444

N/A — not applicable in this year. No anchor test was administered.

Results

Table 6-2, which shows the yearly means of these equated scores, may be used to compare the provincial achievement of each subsequent year with that of the baseline year. The table shows the results of these analyses.

Has achievement, as measured by the diploma examinations, changed over the past few years?

Data presented in Table 6-2 indicate the following:

- In **English 30,** high standards of achievement have been maintained without substantial change since 1989.

- In **English 33,** despite the smaller than ideal sample size, the standards achieved in 1989 have been sustained.

- **Social Studies 30,** although not showing a statistically significant difference, continues to hint at a slight increase each year. However, the observed differences may have been due to random error within the sampling procedure.

- **Biology 30** shows no significant difference in achievement between 1990 and 1992.

- **Chemistry 30** shows no statistically significant difference in achievement between 1990 and 1992. We believe that the observed differences in means were probably due to random error within the sampling procedure.

- **Physics 30** had low numbers of students participating in the study. However, the samples of students who wrote the anchor tests in both 1990 and 1992 were so highly representative of populations of students writing the corresponding diploma examinations that we felt confident a valid comparison could be made. The small difference in achievement between the two years was not found to be significant.

- Due to a change in curriculum emphasis in **Mathematics 30,** there was a change in the anchor test for 1990. As a result, there were two constraints on the anchor test: the anchor questions must have been written by students in 1990, and the same questions had to be applicable to the 1992 curriculum and its new emphasis. In conforming to these constraints, we found we could construct an anchor test that **covered only the topics of polynomial functions and trigonometric functions**. The results can best be interpreted as **no significant change** between 1990 and 1992 **in these topic areas**. Readers are advised to exercise caution in using the means shown for Mathematics 30.

Table 6-2

Average Raw Score on the Multiple-Choice Component of the Diploma Examinations Expressed on a Scale Equivalent to Each Baseline Examination

Course	1989	1990	1991	1992
English 30	55.3[1]	54.6	54.7	54.8
English 33	43.2[1]	43.7	43.1	42.9
Social Studies 30	45.5[1]	45.9	47.3	48.3
Biology 30	N/A[4]	46.5[1]	45.9	45.5
Chemistry 30	N/A[4]	33.1[1]	32.3	34.6
Physics 30	N/A[4]	34.6[1]	N/A[2]	34.7
Mathematics 30	N/A[4]	26.2[1]	N/A[2]	26.4[3]

[1] Baseline year. These are actual raw score means for each subject. Other means for each subject were estimated based on an equivalent scale and are therefore comparable.
[2] Anchor tests were not administered.
[3] Caution should observed in using these scores. See subject explanations.
[4] The Achievement-Over-Time program had not yet begun for these subjects in this year.

Section 7
Examiners' Annual Summary Statements

This section of the report describes for educators how well students met performance standards in the eight diploma examination courses. Each examiners' summary statement addresses four questions:

- What are the characteristics of the student population that wrote the examinations?
- What is the overall performance of students on the examinations?
- How does the overall performance of students relate to the achievement of standards?
- Do the population and performance data reveal any significant trends?

Consistent with most of the data presented in sections 3 through 6, the data in this section of the report are based only on the results of students who had both diploma examination and school-awarded marks. Consequently, the figures provided here are slightly different from the figures on pages 3 and 4, which describe a broader sample.

English 30

What are the characteristics of the student population that wrote the examinations?

During 1991-92, 24 027 students with corresponding school-awarded marks wrote the English 30 diploma examinations. This number represents approximately 72% of all students writing English examinations in 1991-92 and has increased more in 1991-92 than in the previous two years.

English 30 is a course "appropriate for students intending to pursue further academic studies" (*Senior High School Language Arts 1992 Curriculum Guide*, page 6). Participation data suggest that a high proportion of students expecting to graduate are attempting to keep their options open with regard to future academic study by enrolling in English 30.

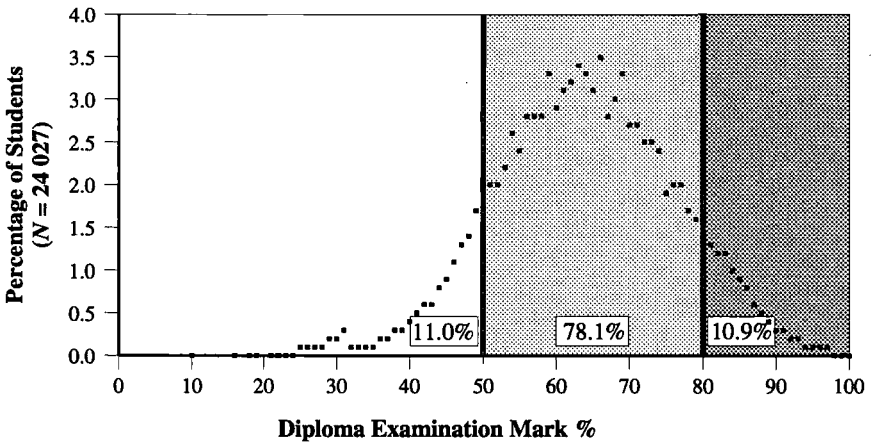
The English 30 population comprises more females than males. About 55% of students writing the English 30 Diploma Examination are female; 45% are male.

What is the overall performance of students on the examinations?

The overall performance of students writing the English 30 diploma examinations during 1991-92 was similar to performance in previous years. However, in comparison to 1990-91, a slightly higher proportion of students achieved diploma examination marks at or above the *standard of excellence*. Consistency of performance is reflected in achievement-over-time studies conducted over the past three years. (See Section 6.)

Figure 7-1

Distribution of English 30 Diploma Examination Marks 1991-92 School Year



Students achieving the *acceptable standard* or higher but not the *standard of excellence*.

Students achieving the *standard of excellence* or higher.

In 1991-92, a significant proportion of the students writing English 30 (89%) attained diploma examination marks at or above the *acceptable standard*, and 10.9% attained diploma examination marks at or above the *standard of excellence* (see Figure 7-1). Although 11% did not meet the *acceptable standard*, most of these students (9.3% of all students) attained marks ranging from 40% to 49%. Some of these students might achieve the *acceptable standard* if they receive further instruction.

How does the overall performance of students relate to the achievement of standards?

Acceptable Standard

Students who achieved at or slightly above the *acceptable standard* were able to understand the reading selection presented in Part A: Written Response and to respond appropriately by relating details from the selection to their own

experiences when writing their response to the Minor Assignment.

In responding to the Major Assignment, students achieving at or slightly above the *acceptable standard* presented a clear controlling idea that reflected a basic understanding of the chosen literary work but not always an understanding of the author's purpose or the wider implications of the literature. That is, students located a character or characters who illustrated a quality suggested by the topic, but they usually did not explore what the author was saying through that character.

Students achieving at or slightly above the *acceptable standard* organized their writing in a mechanical or functional way, giving clear direction to the reader. Occasionally, however, these students simply recounted parts of the story. Students writing at this level usually used language in a correct, practical way to "get the job done" rather than to enhance the details that they were communicating or to illustrate ideas for the reader.

As in the past, students at this level continued to demonstrate some awareness of control of the stylistic choices and the conventions of written language. While many of their sentences revealed flaws such as faulty parallelism and incorrect grammatical agreement between subject and verb or pronoun and antecedent, other sentences were error- free and stylistically effective. The fact that many of these students can and do produce some well-written sentences suggests that they have the potential to move from "acceptable" to "proficient" in their production of written language.

In responding to Part B: Reading, students who achieved at or slightly above the *acceptable standard* demonstrated that they were generally capable of effective close reading and of understanding difficult material, especially non-fiction. These students were often unsuccessful, however, at vocabulary questions requiring closer examination and recognition of contextual clues and re-reading of the passage.

Standard of Excellence

Students who achieved or exceeded the *standard of excellence* on Part A: Written Response produced writing that displayed confidence in ideas, organization, and choice of language. Writing at this level reflected a sensitivity to the emotional tone of the reading selection and also reflected an appreciation of the importance of lively, concrete detail in personal responses. Often, there was a mature understanding of the significance of the topic in the greater scope of human endeavor.

In responding to the Major Assignment, students at this level of achievement demonstrated a perceptive understanding of literature. They were able to use the topic as a springboard to a focused, engaging, thorough examination of a chosen work of literature. Students who achieved or exceeded the *standard of excellence* were confident but thoughtful in presenting their ideas and opinions. Their ability to use language effectively to enhance their expression also suggested confidence.

In responding to Part B: Reading, students achieving or exceeding the *standard of excellence* demonstrated that they had highly developed skill in close reading. These students also achieved noticeably higher scores on questions requiring competence in vocabulary. Students at this level were successful at reading critically and responding precisely to complex literary works such as Shakespearean drama and poetry dense with imagery.

Do the population and performance data reveal any significant trends?

Table 7-1 provides a comparison over the last three years of selected population and performance indicators.

Table 7-1 indicates that the only trend suggested by any of the indicators is the consistent increase in the number of students writing the diploma examination in English 30. Until 1991-92, this increase was relatively small (about 2%). However, the increase from 1990-91 to 1991-92 is slightly over 5%.

Table 7-1

English 30
Three-Year Comparison of Selected Population and Performance Indicators

	1989-90	1990-91	1991-92
Number of Students	22 213	22 841	24 027
Male/Female Proportions in Percent	46/54	45/55	45/55
Percentage of Students Meeting *Acceptable Standard* (Diploma Exam)	89.6	90.6	89.0
Percentage of Students Meeting *Standard of Excellence* (Diploma Exam)	13.0	9.3	10.9

English 33

What are the characteristics of the student population that wrote the examinations?

During 1991-92, 9 254 students with corresponding school-awarded marks wrote English 33 diploma examinations. This is approximately 28% of the total number of students who wrote English 30 and English 33 diploma examinations in 1991-92. Generally, students writing English 33 tended to write few other diploma examinations. For example, the most popular other diploma examination course taken by students writing English 33 in 1991-92 was Biology 30, but only 1 492 of the 9 254 students writing English 33 also wrote Biology 30. The second most popular choice of students writing English 33 was Social Studies 30, with 1 299 writing. There were 657 students who wrote both English 33 and English 30 in 1991-92. The English 33 and English 30 marks of these students had a correlation of 0.71, the highest of any of the correlations of English 33 marks with other diploma examination marks. Correlations of English 33 marks with Biology 30 marks and Social Studies 30 marks were 0.35 and 0.45, respectively.

English 33 is a course "appropriate for students intending to go to vocational school or to seek employment after leaving high school" (*Senior High School Language Arts 1982 Curriculum Guide*, page 6). The fact that so few English 33 students took other diploma examination courses may indicate that these students did, indeed, plan to enter the workforce immediately upon graduation.

English 33 was selected by more male students than female students. In 1991-92, 5 335 male students and 3 919 female students wrote the English 33 Diploma Examinations.

What is the overall performance of students on the examinations?

The overall performance of students writing the English 33 diploma examinations this past school year was generally satisfactory. In 1991-92, 87.3% of students writing English 33 attained diploma examination marks at or above the *acceptable standard*, and 5.5% attained diploma examination marks at or above the *standard of excellence* (see Figure 7-2). The proportion of students who did not meet the *acceptable standard* was 12.7%, but 10.3% of students attained marks ranging from 40% to 49%. Only 2.4% attained marks of 39% or lower.

How does the overall performance of students relate to the achievement of standards?

Acceptable Standard

Students who achieved at or slightly above the *acceptable standard* were able to respond clearly and correctly to all three assignments in Part A: Written Response. They demonstrated a clear understanding of the reading selection in their responses to Section I: Personal Response to Literature, and they addressed the assignment in a conventional manner. These students discussed life experiences and themes from literature in perfunctory but acceptable ways.

Students achieving at or slightly above the *acceptable standard* provided satisfactory responses to Section II: Functional Writing. These students used the information provided in the assignment to fulfill their purposes sufficiently and were able to adopt an appropriate tone that demonstrated an awareness of audience. They were able to organize their work logically and clearly.

When responding to Section III: Response to Visual Communication, these students tended to interpret the photograph in conventional ways using generalized observations for support.

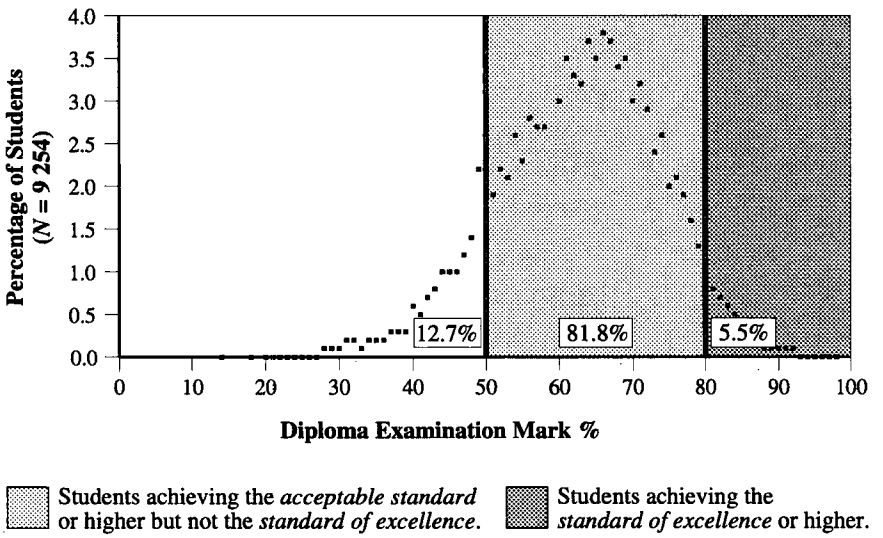
Students who just met the *acceptable standard* on Part A: Written Response provided few specific details in their writing. Writing skills demonstrated by these students were minimally acceptable.

In responding to Part B: Reading, students who achieved at or slightly above the *acceptable standard* were able to understand reading selections that were intended for a general audience. They were able to draw some inferences from context and to apply basic concepts such as metaphor and foreshadowing. However, these students had difficulty understanding and interpreting irony.

In responding to the revision assignments on Part B: Reading (students were required to make decisions about appropriate revisions to the draft of a letter), many students achieving at or slightly above the *acceptable standard* appeared to understand the rationale behind revisions in areas such as tone, diction, and conventions. What was discouraging was that many of these students did not transfer this apparent understanding to their own writing on Part A: Written Response.

Figure 7-2

Distribution of English 33 Diploma Examination Marks 1991-92 School Year



Standard of Excellence

Students who achieved or exceeded the *standard of excellence* generally produced work of superior quality on all of the assignments in Part A: Written Response. When responding to Section I: Personal Response to Literature, students at this level usually interpreted the assignment in an insightful way. They presented significant themes or ideas and used precise examples from life and literature to support their themes. Many of these students responded to the universal implications of the selections and explored topics in a perceptive manner. These students used precise, thoughtfully chosen, and often imaginative details. They were able to select examples and illustrations from reading selections, from their own experience, and from other literature to fulfill their purpose. Many of these students judiciously chose quotations from the selections and skillfully embedded them in their writing. Their writing was focused, coherent, and smoothly developed. They used words and structures that were effective and basically free from errors. These students projected confidence in their writing.

When responding to Section II: Functional Writing, students achieving or exceeding the *standard of excellence* used an appropriate and engaging tone. They provided significant information that was enhanced by appropriate details. These students had a precise awareness of audience, and they provided important and essential information necessary for their purpose. Writing skills demonstrated at this level were relatively even; word choice and sentence structure were consistently even, and there were few errors in mechanics and grammar.

When responding to Section III: Response to Visual Communication, students achieving the *standard of excellence* presented insightful interpretations of the photograph, stating appropriate themes or ideas. Their ideas were typically extended and reinforced throughout their compositions. These students chose specific elements from the photograph to support their ideas. They made few mechanical or grammatical errors, and produced relatively lengthy responses.

In responding to Part B: Reading, students achieving or exceeding the *standard of excellence* demonstrated an understanding of relatively complicated literature. They were able to delve beyond the literal level of a work to make inferences from important features such as irony and symbolism. These students demonstrated that they carefully and thoughtfully read the selections and all parts of each question before answering.

Do the population and performance data reveal any significant trends?

Table 7-2 provides a comparison over the last three school years of selected population and performance indicators. The number of students writing English 33 diploma examinations has increased over the last three years. The increase from 1989-90 to 1990-91 was relatively slight at 2.6%, but the increase from 1990-91 to 1991-92 was quite significant at 7.8%. The proportion of male and female students writing the English 33 diploma examinations has remained relatively constant over the past three years, but this difference in proportion is unusual for diploma examination subjects. (See Figure 3-1.) The two performance indicators have also been relatively constant over the past three school years. The difference in the proportion of students achieving either standard from year to year is slight. Students appear to be maintaining a generally satisfactory level of performance in English 33.

Table 7-2

English 33
Three-Year Comparison of Selected Population and Performance Indicators

	1989-90	1990-91	1991-92
Number of Students	8 369	8 586	9 254
Male/Female Proportions in Percent	57/43	57/43	58/42
Percentage of Students Meeting *Acceptable Standard* (Diploma Exam)	85.1	88.5	87.3
Percentage of Students Meeting *Standard of Excellence* (Diploma Exam)	5.9	5.9	5.5

Social Studies 30

What are the characteristics of the student population that wrote the examinations?

During 1991-92, 20 804 students with corresponding school-awarded marks wrote the Social Studies 30 diploma examinations. Approximately 71% of the Grade 12 population who wrote an English 30 Diploma Examination also wrote the Social Studies 30 Diploma Examination. To qualify for an Advanced High School Diploma in Alberta, a student must receive credit in Social Studies 30 in addition to receiving credit in English 30. This suggests that many of the students who expected to graduate in 1992 planned to earn an advanced diploma.

Generally, students writing Social Studies 30 also wrote other diploma examinations. For example, the most popular other diploma examination courses (besides English 30) taken by students writing Social Studies 30 were Mathematics 30 (12 286) and Biology 30 (12 181). There are high correlations between diploma examination marks in Social Studies 30 and English 30 (0.68), and Social Studies 30 and Biology 30 (0.70). There is also a high correlation (0.77) between Social Studies school-awarded marks and Social Studies 30 diploma examination marks.

Social Studies 30 is a course "designed for those students who are seeking an Advanced High School Diploma and who will likely pursue post secondary studies" (*Senior High Social Studies Program of Studies,* page 1). The fact that many Social Studies 30 students took other diploma examination courses may indicate that these students did plan to enter post-secondary institutions upon graduation.

Social Studies 30 was selected by more female than male students. In 1991-92, 10 934 female students and 9 870 male students wrote the Social Studies 30 diploma examinations.

What is the overall performance of students on the examinations?

The overall performance of students writing the Social Studies 30 diploma examinations was generally satisfactory. In 1991-92, 81.1% of the students writing Social Studies 30 attained diploma examination marks at or above the *acceptable standard,* and 13.5% of the students attained diploma examination marks at or above the *standard of excellence* (see Figure 7-3). The proportion of students who did not meet the *acceptable standard* was 18.9%, but 13.3% of students attained marks ranging from 40% to 49%. The percentage of students whose marks were 39% or lower was 5.6%.

How does the overall performance of students relate to the achievement of standards?

Acceptable Standard

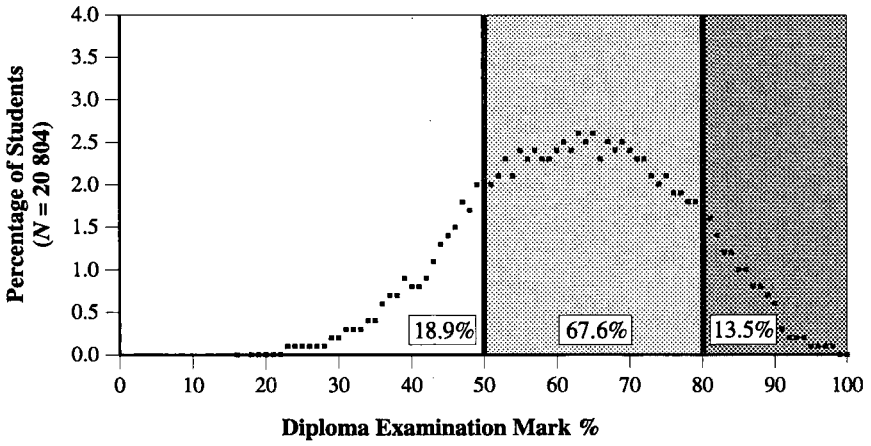
In answering the multiple-choice questions in Part A of the examination, students who achieved at or slightly above the *acceptable standard* were able to recall and comprehend certain historical events or economic and political concepts. Students just meeting the *acceptable standard* experienced difficulty, however, with questions involving chronology, various critical thinking skills, and the application of knowledge to new or unfamiliar situations. In particular, these students experienced difficulty with textual or data-based questions (such as those involving a cartoon, graph, map, or series of quotations) that required them to see relationships, interpret trends, understand cause and effect, or identify stated or unstated assumptions.

Many students who just met the *acceptable standard* had difficulty dealing with the complexity of the task on Part B: Written Response. Typically, these students continue to present largely descriptive essays containing both relevant and irrelevant detail. Many students who just met or who fell short of the *acceptable standard* found the demands of the written-response section of the June 1992 examination particularly challenging. They had difficulty applying and integrating concepts and defining the issues. They appear to have rushed headlong into their writing without taking enough time to consider the level of abstraction expected and the relevance of historical or contemporary examples associated with the issues under discussion.

Students who fell short of the *acceptable standard* often substituted memorized information for reasoned thought. They presented evidence in descriptive, sometimes random, terms. They left the task of sorting out and applying scattered facts to the reader. They presented,unchallenged, popularly accepted versions of past or present events as unsupported, simple assertions. They often made little attempt to elaborate, explain, or develop specific ideas. Such superficial, non-analytical writing received low scores.

Figure 7-3

Distribution of Social Studies 30 Diploma Examination Marks 1991-92 School Year



Standard of Excellence

In answering the multiple-choice questions in Part A, students achieving or exceeding the *standard of excellence* demonstrated that they understood social studies concepts and comprehended historical, political, and economic relationships, many of which are very complex. They were consistently able to interpret and evaluate information and ideas, and to review, analyse, and synthesize specific information.

Students who achieved or exceeded the *standard of excellence* often produced powerful and substantive writing in their responses to the assignment in Part B: Written Response. Given the complexity of the task and the constraints of time, some of these students' compositions were truly remarkable. Many of the responses of students achieving at this level revealed qualities of argument, support, development, and organization that exhibited a breadth of historical and contemporary knowledge. Students achieving or exceeding the *standard of excellence* clearly showed ownership of the ideas they expressed; their writing revealed engaged minds thoughtfully immersed in issues relevant and meaningful to them. These students were comfortable in exploring ideas in their complexity.

Do the population and performance data reveal any significant trends?

Table 7-3 provides a comparison over the last three school years of selected population and performance indicators.

The number of students writing the Social Studies 30 Diploma Examinations has increased over the last three years. The increase from 1989-90 to 1990-91 was quite significant at 7.9%, and the increase from 1990-91 to 1991-92 was 3.2%. The proportion of male and female students writing and the two performance indicators have been relatively constant over the past three school years. Students appear to be maintaining a generally satisfactory level of performance in Social Studies 30.

Although more females than males wrote the diploma examination in Social Studies, males achieved a higher average than females during 1990-91 (66.7% compared to 62.7%) and in 1991-92 (64.8% compared to 61.0%). Interestingly, during 1991-92, males outperformed females on average on the multiple-choice section of the examinations (69.6% compared to 63.4%) but not on the written-response component, where females outperformed males 55.0% to 53.5% on average. (See Section 3.)

One reason for the increase in the percentage of students meeting the *acceptable standard* and *standard of excellence* between 1989-90 and 1990-91 may be writing that showed better awareness of how to develop and organize an argumentative essay. One reason for the decrease in these performance indicators between 1990-91 and 1991-92 may be the challenging nature of the written-response component of the June 1992 examination. The demands of this assignment appear to have been very challenging.

Table 7-3

Social Studies 30
Three-Year Comparison of Selected Population and Performance Indicators

	1989-90	1990-91	1991-92
Number of Students	18 690	20 168	20 804
Male/Female Proportions in Percent	48/52	47/53	47/53
Percentage of Students Meeting *Acceptable Standard* (Diploma Exam)	79.9	84.2	81.1
Percentage of Students Meeting *Standard of Excellence* (Diploma Exam)	14.5	15.9	13.5

Français 30

What are the characteristics of the student population that wrote the examinations?

Français 30 is the final course of the Français 10-20-30 program designed for francophone students as defined in Section 23 of the *Canadian Charter of Rights and Freedoms*. Students enrolled in Français 30 are required to write the Français 30 Diploma Examination.

There were 84 regular school students who wrote the Français 30 Diploma Examination in the 1991-92 school year, 11 of whom completed the course in the first semester and wrote the January 1992 examination. The other 73 were in a full-year program and wrote the examination in June 1992. Because very few students wrote at each examination administration, results must be interpreted with caution.

The Français 30 Diploma Examination was also administered to "private study" students, that is, to adults seeking credit in high school French without having taken a course. There was one such student who wrote in January. There was also one candidate in June registered as a special case student.

What is the overall performance of students on the examinations?

The overall performance of the 84 students who wrote the Français 30 Diploma Examination in the 1991-92 school year was satisfactory. They all attained final course marks at or above the *acceptable standard*, and 6.0% of them attained or exceeded the *standard of excellence*.

Students enrolled in Français 30 wrote an average of five diploma examinations (see Figure 2-3), indicating that most of these students are hoping to receive advanced high school diplomas.

Fewer students attained the *standard of excellence* in 1991-92 compared to 1990-91. However, such differences are not generalizable because of the small population.

How does the overall performance of students relate to the achievement of standards?

La Partie A: Production écrite

The written-response section of the Français 30 Diploma Examination required students to write two assignments related to a selection from a work of literature presented on the examination. The first assignment, "Premier Sujet," elicited a personal response to the selection. The second, "Deuxième Sujet," asked students to choose literature read in class and to relate it to a given theme inspired by the selection.

Students were able to understand the tone and content of the given literature and to respond clearly and effectively. For the personal response, they expressed their personal opinions and reactions with confidence. Most took the more obvious approach to the question by supporting the given theme, and a few were able to present an opposing view successfully. Examples taken from their own experiences or from general observations were generally appropriate and often interesting. Although the writing of students just meeting the *acceptable standard* was sometimes wordy and repetitious, markers clearly understood what they had to say. Students achieving or exceeding the *standard of excellence* were able to present their ideas succinctly, directly, and emphatically.

In the second assignment, which was related to literature read in school, students had no difficulty selecting works that reflected the given theme. Students achieving or exceeding the *standard of excellence* chose significant details from the literature to show how the given theme was developed by the author. Students just meeting the *acceptable standard* tended to choose more minor details or to repeat one significant detail, with less effect. All students, however, were able to convince the readers of the relationship between what they had read and what the assignment required. Students have learned well how to organize their ideas, how to choose effective vocabulary and structures, and generally how to follow conventions of language. In the June 1992 examination, the topic of the "Deuxième Sujet" lent itself, in some measure, to a retelling of the story. However, for the most part, students overcame this tendency and had control of their task.

It must be remembered that students are writing in a limited time under stress and that their work is considered a first draft. Under these conditions, what they achieved was impressive and often a pleasure to read.

La Partie B: Compréhension écrite

Part B: Reading Comprehension consisted of two booklets. The readings booklet contained selections from non-fiction and fiction, one poem, and one piece of drama. The questions booklet contained 70 multiple-choice questions based on these readings. The questions were classified according to thinking skills.

Students' performance was generally satisfactory. They were able to identify and select, infer, interpret, and evaluate main ideas. They were also able to recognize the rapport between the author and the reader as well as discern values expressed. Students achieving the *standard of excellence* seemed better able to discern the nuances required to choose the right answer in some questions. Students achieving the *acceptable standard* did well on the questions requiring a literal understanding. These students should be encouraged to refer to the reading selections when contemplating their answers. This could help them to perceive more of the nuances of the text.

Do the population and performance data reveal any significant trends?

We can make no comments on trends in the data because the number of students enrolled in the course is extremely small.

Mathematics 30

What are the characteristics of the student population that wrote the examinations?

In 1991-92, 19 065 students with corresponding school-awarded marks wrote Mathematics 30. This represents approximately 57.3% of the students who wrote either the English 30 or English 33 diploma examinations.

What is the overall performance of students on the examinations?

Although overall performance of students who wrote the Mathematics 30 diploma examinations during 1991-92 improved over the 1990-91 administrations, performance at the standard of excellence did not. In 1991-92, 73.2% of the students writing Mathematics 30 attained diploma examination marks at or above the *acceptable standard.* This is higher than 1990-91 school year, when 70.8% achieved this standard. Only 15.6% of the students achieved the *standard of excellence*; this is lower than the 1990-91 school year, when 21.1% attained diploma examination marks at or above the *standard of excellence* (see Figure 7-4). During the 1991-92 administrations, 26.8% of the students failed to meet the acceptable standard, compared to 29.2% in 1990-91.

How does the overall performance of students relate to the achievement of standards?

Standards for the Mathematics 30 Diploma Examination for the 1991-92 school year were published in the Mathematics 30 Diploma Examination General Information Bulletin. The 1991-92 examinations reflected content changes and emphases in the Mathematics 30 curriculum. Specific content changes as well as the emphasis on problem solving and communication skills were incorporated into the examination. On the examination, students were expected to describe mathematical situations, explain their solutions, write directions, explain their reasoning, create new problems, create new strategies, generalize a mathematical situation, and formulate hypotheses. The Mathematics 30 examiners' reports outline the scoring criteria for these questions.

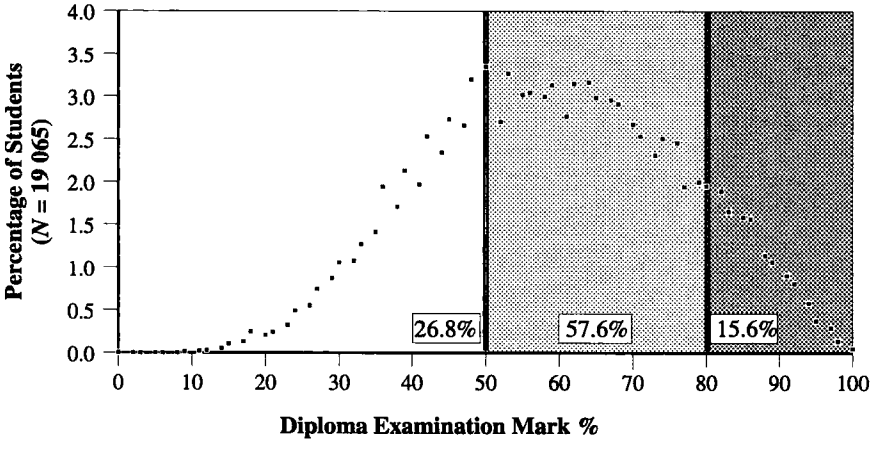
Acceptable Standard

Students who met the *acceptable standard* of performance but not the *standard of excellence* (57.6%) were able to solve problems involving more than one step as long as the information provided was given in a "standard" form and could be referenced on the formula sheet. In trigonometry, for instance, students were able to solve a trigonometric identity when the information needed to solve the identity was given on the formula sheet. For the most part, students in this group were able to recognize relationships between mathematical concepts and were able to recognize these relationships as long as they were presented in a specific sense. Many were not able to identify these relationships in the general case. For example, these students were able to find the zeros of a polynomial, given its graph, and then were able to identify that there is a relationship between the multiplicities of the zeros of the polynomial and the degree of the polynomial, but could not generalize the effect on the graph of the polynomial if the multiplicities of the zeros changed.

Students who did not meet the *acceptable standard* of performance on the Mathematics 30 Diploma Examination (26.8%) had difficulty solving problems other than those that required solving for a single piece of information using a formula provided on the formula sheet. These students were able to solve problems that required a one-step translation, such as finding the value for sec θ, given cos θ. As a second example, these students were able to find the zeros of a polynomial, given its graph, but were not able to recognize that there is a relationship between the multiplicities of the zeros of the polynomial and the degree of the polynomial.

Figure 7-4

Distribution of Mathematics 30 Diploma Examination Marks 1991-92 School Year



Students achieving the *acceptable standard* or higher but not the *standard of excellence.*

Students achieving the *standard of excellence* or higher.

Standard of Excellence

Students who met the *standard of excellence* or higher in Mathematics 30 (15.6%) had little difficulty solving any problems, regardless of the manner in which the material was presented and the number of steps required to solve the problem. For instance, those students who achieved the *standard of excellence* were able to read information from equations that were presented in both a "standard" and "nonstandard" form. Further, they recognized and were able to describe relationships between mathematical concepts in both the specific and the general cases. For example, these students were able to find the zeros of a polynomial, given its graph, and then

were able to identify that there is a relationship between the multiplicities of the zeros of the polynomial and the degree of the polynomial. They could then discuss this polymonial in the general case; for instance, how the graph of the polynomial would change if the multiplicity of the zero changed. Students who attain the *standard of excellence* were able to relate one concept to another and were able to apply concepts in unfamiliar situations.

Do the population and performance data reveal any significant trends?

For the fourth year in a row, approximately 30% of the students who wrote the examination in June did not meet the acceptable standard.

Many students who are enrolled in Mathematics 30 continue to have difficulty relating and interpreting algebraic and graphical representations of relations and continue to have difficulty applying mathematics in new situations.

Of particular concern during this year was the focus on the Mathematics 30 curriculum change. In analyzing June results, we compared students' performance on the "new" portion of the course and the "overlapped" portion of the course. Overall, the difficulty of the questions on the two portions was the same. We did find that there were 93 schools where more students achieved the standard on the "overlap" than on the "new"; 71 schools where there was no difference between achievement on the two portions; and 125 schools where more students achieved the standard on the "new" than on the "overlap."

There is concern about the difference between school standards and department standards for Mathematics 30. We compared the percentage of students achieving a pass on the school mark with the percentage achieving a pass on the examination mark. In the province, there were 6 schools where more students passed the exam than received passing marks from the school; 32 schools where there was no difference in the percent of students with a passing school mark and with a passing examination mark; and 251 (or 86.5%) schools where more students achieved higher school marks than examination marks. For example, in one school, 125 students wrote the examination. Of those students, 105 received a passing school mark while only 46 passed the examination. As schools become more familiar with the standards for Mathematics 30, it is hoped that these differences will decrease. Although the diploma examination only measures those areas that can be tested on a paper-and-pencil test, the standards should be similar. To assist with this, Alberta Education has prepared a draft of standards for Mathematics 10 and Mathematics 20. This trend of a higher school mark is not unique to Mathematics 30. This occurs in 84.8% of the schools for Social Studies 30, 71.7% of the schools for Biology 30, 70.8% of the schools for Chemistry 30, 71.7% of the schools for Physics 30, 45.0% of the schools for English 30, and 30.4% of the schools for English 33.

Biology 30

What are the characteristics of the student population that wrote the examinations?

In 1991-92, 20 313 students with corresponding school-awarded marks wrote the Biology 30 diploma examinations. This represents an increase of 6% compared to 1990-91. Approximately 61% of the students who wrote either the English 30 or English 33 diploma examinations also wrote a diploma examination in Biology 30 during 1991-92. The gender distribution was 58.2% female and 41.8% male, which is similar to the 1990-91 distribution.

Approximately 40.5% of the students who obtained a Biology 30 Diploma Examination mark also obtained a mark in Chemistry 30. Approximately 16.5% of the students who obtained a Biology 30 Diploma Examination mark also obtained a mark in Physics 30.

As in the previous year, the group who attained the highest examination average (see Table 7-4) wrote Biology 30 diploma examinations while in their second year of high school. This group contains a high proportion of students who plan to take additional 30-level science courses in their third year of high school.

What is the overall performance of students on the examinations?

The overall performance of students who wrote the Biology 30 diploma examinations during the 1991-92 school year decreased slightly in comparison with overall performance in 1990-91. This is not only reflected in the examination average (63.2% compared with 64.1%) but also in the proportion of students (76.5% compared with 77.7%), who achieved the *acceptable standard.* A significant proportion of students (20.5%) achieved the *standard of excellence.* Although 23.5% of the students did not meet the *acceptable standard,* 8.1% of all students obtained marks ranging from 45% to 49%. Most of these students may be able to achieve the *acceptable standard* in the future.

There is a high correlation (0.813) between Biology 30 school-awarded

Table 7-4

Biology 30
Three-Year Comparison of Selected Population and Achievement Indicators

Year	Subgroup	2nd Year of High School	3rd Year of High School	4th Year of High School	Transferred In
1991-92	Per Cent of Population	11.2	78.8	5.7	4.3
	Examination Average	67.5	62.6	56.6	63.3
1990-91	Per Cent of Population	9.1	81.1	5.2	4.6
	Examination Average	69.5	63.5	58.9	65.2
1989-90	Per Cent of Population	1.6	88.8	4.9	4.7
	Examination Average	59.2	62.6	57.1	63.7

marks and Biology 30 Diploma Examination marks. There are also high correlations between diploma examination marks in Biology 30 and Social Studies 30 (0.702) as well as Chemistry 30 (0.702). A low correlation exists between diploma examination marks in Biology 30 and English 33 (0.347).

The percentage of female students who achieved the *acceptable standard* on Biology 30 diploma examinations was 74.5 compared with 79.2 of male students. The percentage of females who achieved the *standard of excellence* on the Biology 30 diploma examinations was 18.8 compared with 22.8% of males. The average for females was 62.2% compared with 64.6% for males.

The distribution of Biology 30 Diploma Examination marks is given in Figure 7-5.

How does the overall performance of students relate to the achievement of standards?

Acceptable Standard

Students who met the *acceptable standard* but not the standard of excellence (56.0%) understood the basic functions of human body structures. They recalled the properties of key biological substances and therefore selected correct physiological functions for these substances. This group of students correctly interpreted data presented in simple graphs, tables, and diagrams. However, they found it difficult to interpret complex graphs and tables that presented interrelated sets of data. These students related biology concepts to simple human experiences but found it difficult to analyze multi-step human physiology problems. Questions that required the understanding of biology concepts within the context of technology (artificial heart valves, kidney machines) proved difficult. These students understood the basic language of biology, but interdisciplinary science vocabulary and concepts (ion, compound, reaction, transmission, curvature) created problems for them. The students in this group composed one or two sentence answers that were clear and logical for questions that contained only one component. However, they had difficulty creating multi-paragraph responses to problems that required developing several ideas. Their answers to these questions frequently consisted of recalled information that did not address the central issues of the problems posed.

Students who did not meet the *acceptable standard* (23.5%) did not understand basic functions of human body structures. They found it difficult to interpret data represented in diagrams and tables. They did not know the functional properties of key biological substances. They were unable to organize sequentially the major steps of physiological processes. This group of students could not compose clear and logical explanations for single component problems. Their responses indicated that they did not adequately understand the meaning of the questions they attempted to answer.

Standard of Excellence

Students who met the *standard of excellence* or higher (20.5%) demonstrated consistent performance, whether they selected or created responses. They could recall precise knowledge about human organ structure and function. They could then use this knowledge to solve multi-step problems. They were able to trace the pathways that materials follow through the human body and arrange physiological processes in sequential order. They could form hypotheses based on initial data and then evaluate them in the light of new data. They could evaluate experimental designs and suggest corrective procedures if errors were evident. Their compositions demonstrated a clear understanding of cause-and-effect relationships. They used scientific vocabulary with precision and communicated clearly.

Do the population and performance data reveal any significant trends?

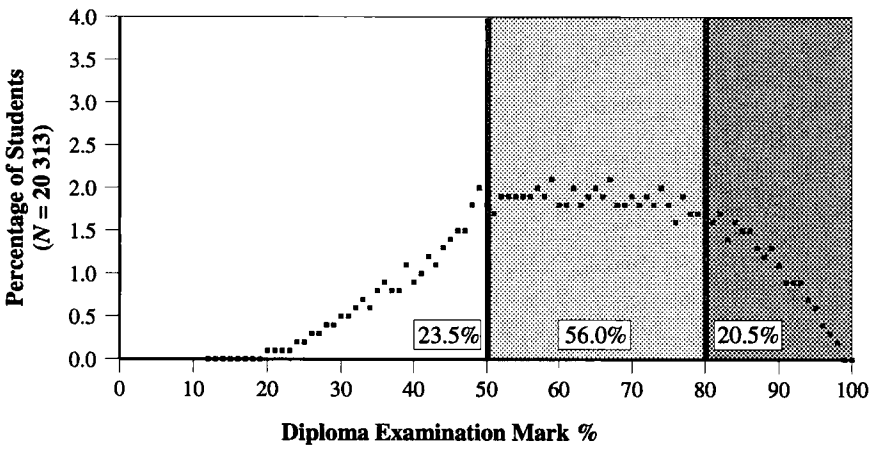
The total number of students who obtained a final course mark in Biology 30 increased by approximately 10% from 1989-90 to 1991-92. The increase in the number of females (11.5%) was greater than the increase in the number of males (7.9%).

As indicated in Table 7-4, a dramatic increase (from 1.6% to 11.2%) occurred in the proportion of students who received an examination mark in Biology 30 while in their second year of high school (Grade 11). A corresponding decrease (from 88.8% to 78.8%) occurred in the proportion of students who received a Biology 30 examination mark while in their third year of high school (first year of Grade 12). The proportion of students who received a Biology 30 examination mark who were in their fourth year of high school (second year of Grade 12) increased slightly, from 4.9% to 5.7%.

The average score on the Biology 30 diploma examinations for the 1989-90 Grade 11 population was 3.5% below the average achieved by the first-year Grade 12 population. However, in 1990-91 and 1991-92, the dramatic

Figure 7-5

Distribution of Biology 30 Diploma Examination Marks 1991-92 School Year



Students achieving the *acceptable standard* or higher but not the *standard of excellence*.

Students achieving the *standard of excellence* or higher.

increase in the proportion of Grade 11 students who obtained diploma exam marks in Biology 30 was accompanied by an increase in the average diploma examination score (5.5% above the first-year Grade 12 population average exam score).

The percentage of students who achieved the *acceptable standard* but not the *standard of excellence* on the Biology 30 diploma examinations increased by 0.5% from 1989-90 to 1991-92. Fluctuations of approximately 2% occurred in the proportion of students who failed to obtain the *acceptable standard* as well in the percentage of students who obtained the *standard of excellence* on the Biology 30 diploma examinations for the school years 1989-90 to 1991-92. The proportion of males who achieved the *acceptable standard* was approximately 4% higher than the proportion of females who achieved the *acceptable standard* for the school years 1989-90 to 1991-92. A similar gender difference existed for the *standard of excellence*.

Chemistry 30

What are the characteristics of the student population that wrote the examinations?

In 1991-92, 16 156 students with corresponding school-awarded marks wrote the Chemistry 30 diploma examinations. This represents approximately one-half of the students who wrote either the English 30 or English 33 diploma examinations. Even though this number meets expectations, not all students capable of achieving the *acceptable standard* or the *standard of excellence* were enrolled in chemistry. For example, some students who were successful in Physics 30 did not take Chemistry 30. Since these students are likely to be successful in the chemistry program, they could be encouraged to enrol.

What is the overall performance of students on the examinations?

The overall performance of students writing the Chemistry 30 diploma examinations during 1991-92 was satisfactory, with more students than last year achieving the *acceptable standard* (see Figure 7-6). In 1991-92, 83.0% of the students writing Chemistry 30 attained diploma examination marks at or above the *acceptable standard*, and a significant proportion of the students (22.5%) attained diploma examination marks at or above the *standard of excellence*. This figure is slightly lower than the 22.8% of the students who attained the standard of excellence in 1990-91. Several of the students (7.3%) attained marks ranging from 44% to 49%. These students may be able to achieve the acceptable standard in the future.

How does the overall performance of students relate to the achievement of standards?

Acceptable Standard

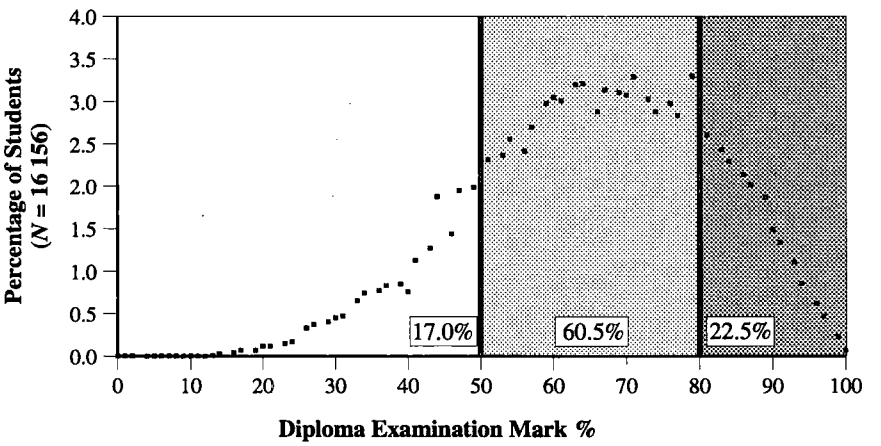
Students who met the *acceptable standard* of performance but not the *standard of excellence* (60.5%) were able to do stoichiometry of more than one step as long as it did not involve writing and balancing equations for chemical reactions. These students could transpose data to and from a graphical form. They successfully ranked species on the basis of their properties and were able to use and extract pertinent information from the data booklet tables. However, they had difficulty recognizing ratios other than 1:1 in acid-base chemistry and solving stoichiometric problems. They normally recognized the correctness of a situation for most concepts but had difficulty designing their own experimental procedures based on these concepts. These students were usually able to organize their creative responses in an understandable fashion, though they had difficulty with communication conventions, such as significant digits.

These individuals worked best with concepts that involved only one or two stages and as a result did well on the multiple-choice questions. They averaged almost 50% on the created response sections of the examination.

Students who did not meet the *acceptable standard* of performance on the Chemistry 30 diploma examinations (17.0%) had difficulty solving stoichiometric problems other than those involving a simple single-step addition/subtraction problem, such as calculating the voltage of a cell given the half-reactions. These students were also unable to transfer

Figure 7-6

Distribution of Chemistry 30 Diploma Examination Marks
1991-92 School Year



Students achieving the *acceptable standard* or higher but not the *standard of excellence*.

Students achieving the *standard of excellence* or higher.

data to or from graphical form or to use data to predict trends or patterns. In general, these students had difficulty creating their responses and communicating their ideas clearly. As a result, they did not do well in the created (numerical and written) response sections of the examination. They did, however, recognize correct statements about essential concepts and had their greatest success on the multiple-choice section of the examinations.

Standard of Excellence

Students who met the *standard of excellence* or higher (22.5%) were able to solve any of the stoichiometric problems presented and to recognize ratios other than 1:1 in acid-base chemistry. They also recognized relationship and ratios between the dissolved solute and the resulting species and as a result were able to accurately predict physical properties of solutions. They had no difficulty distinguishing between strength and concentration, nor did they have difficulty designing their own experimental laboratory procedures. In general, they were able to apply their knowledge in new and novel situations and were therefore very successful in creating responses. These students had no difficulty organizing and communicating their responses. They did well on all sections of the examination, and their work on the created response sections was better than expected.

Do the population and performance data reveal any significant trends?

The trend we noted last year continues, that is, increased Grade 11 participation and achievement in Chemistry 30. The number of students in their second year of high school electing to enrol in Chemistry 30 increased from 7.0% to 8.5% (see Table 7-5). We expect this trend to continue until the 1993-94 school year, when the new Chemistry 20 program is implemented. This implementation will prevent students in their second year, who have completed the new Chemistry 20 program, from enroling in the existing "old" Chemistry 30 program. We expect this change will reduce enrolment, thereby reducing the provincial average and increasing the failure rate on the 1994 Chemistry diploma examinations.

The enrolment and achievement of fourth year and out-of-province students did not change significantly over previous years' enrolment.

Table 7-5

Chemistry 30
Three-Year Comparison of Selected Population and Achievement Indicators

Year	Subgroup	2nd Year of High School	3rd Year of High School	4th Year of High School	Transferred In
1991-92	Per Cent of Population	8.5	82.5	4.0	5.0
	Examination Average	68.7	64.5	58.1	68.2
1990-91	Per Cent of Population	7.0	83.6	4.2	5.2
	Examination Average	69.9	64.2	58.5	67.9
1989-90	Per Cent of Population	1.2	90.3	4.4	4.1
	Examination Average	63.9	62.7	56.7	66.5

Physics 30

What are the characteristics of the student population that wrote the examinations?

In 1991-92, 8 196 students with corresponding school-awarded marks wrote the Physics 30 diploma examinations. In 1991-92, Physics 30 was taken by 26% of the students who wrote either the English 30 or English 33 diploma examinations. However, this relatively low participation rate is slightly higher than in previous years. For males, the participation rate in Physics 30 was 33% (5 299 students) and for females 18% (2 897 students). The female participation rate represents a small increase from the previous year. The females registered in Physics 30 did slightly better than males, both on the school-awarded mark and the diploma examintion mark. Female registration should continue to be encouraged, as a growing number of career opportunities have Physics 30 as a prerequisite for professional studies.

What is the overall performance of students on the examinations?

The overall performance of students writing the Physics 30 diploma examinations during the 1991-92 school year was satisfactory (see Figure 7-7). Performance was consistent with the performance in previous years. The proportion of students with diploma examination marks at or above the *standard of excellence* was 22.6%. This represents a drop of 0.4% from the results in the previous year. The proportion of students that failed to reach the *acceptable standard* was 18.6%, compared to the previous year's proportion of 16.9%. Thus, the examinations allowed a reasonable number of students to achieve the *acceptable standard* but still remained challenging for students achieving at or near the *standard of excellence.*

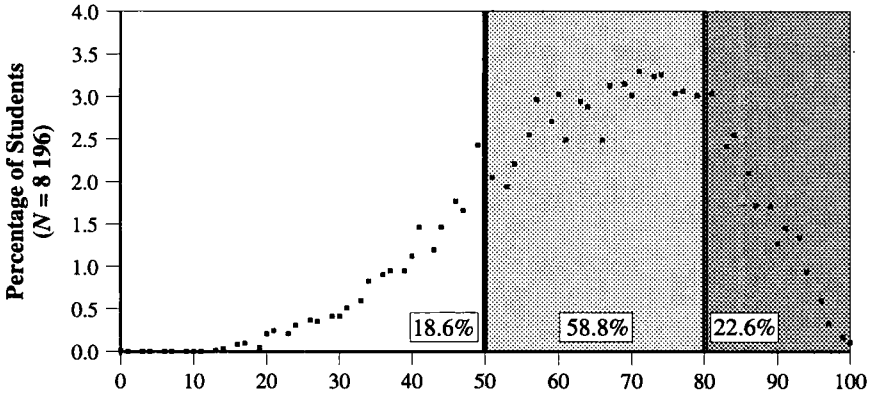
Performance from Semester to Semester

Students who wrote the January 1992 Diploma Examination did as well overall as those who wrote the June 1992 examination. Achievement comparisons are shown in Table 7-6.

The significant variation in performance from semester to semester, which happened in the 1990-91 school year, did not occur in the 1991-92 school year.

Figure 7-7

Distribution of Physics 30 Diploma Examination Marks
1991-92 School Year



Students achieving the *acceptable standard* or higher but not the *standard of excellence*.

Students achieving the *standard of excellence* or higher.

How does the overall performance of students relate to the achievement of standards?

Acceptable Standard

Students who met the *acceptable standard* but not the *standard of excellence* (58.8%) could reliably state and solve only those problems that could be related quickly to an equation in the data booklet. For this group, laboratory skills were limited to following explicit directions and to using laboratory data to verify known physics information. These students were capable of defining and calculating quantities such as slope, refractive index, orbit radius, electric force, and photoelectric work function. They tended to use item-specific methods in their problem solving and rarely used the major generalizations of physics such as Newton's laws or the conservation laws of charge, momentum, and energy. Thus, students performing near the *acceptable standard* showed only limited understanding of the full scope and sequence of the Physics 30 *Program of Studies*. Within this restricted range of content, such students performed competently.

In 1991-92, students with final course marks near the *acceptable standard* used the data booklet supplied more as a crutch than as a summary of the physics content. Those who reached this standard showed that they could use the equations and information provided to solve problems requiring single-step calculations. They were also competent in recalling facts and essential definitions related to specific concepts. Many students found it difficult to translate definitions into alternative forms and to judge whether a data booklet equation was valid within the range of values given in a particular problem. These students had difficulty identifying the relationship between two variables that had been expressed in a graphical representation. Students achieving at this standard found it difficult to make predictions based on information or data presented. They found the multiple-choice section far easier than the written-response section.

Those who did not meet the *acceptable standard* (18.6%) were also overly dependent on the data booklet but failed to use it effectively even in the solution of single-step, calculation-type problems. These students found the written-response section very difficult and typically scored 30% or lower on this section.

Standard of Excellence

Students meeting the *standard of excellence* or higher (22.6%) showed far more flexibility and creativity than those achieving the *acceptable standard*. They sought to use general methods of solution and were not afraid to use conservation laws to solve unusual problems. They illustrated a transference of knowledge from one area of physics to another and expressed their answers clearly and concisely. They made inferences that were not part of their "known" area of physics. These students were able to use generalizations of physics and distinguish between vectors and scalars or forces and fields.

In 1991-92, students with final course marks near the *standard of excellence* tended to use the data booklet to support their problem-solving strategies and were not overly dependent upon it. These students stated and easily recognized relationships between variables. Those who achieved just below this standard had some difficulty with questions that require multi-step solutions and needed explicit cues before they were able to use a wider range of problem-solving strategies. In many cases, such students solved more complex problems in the multiple-choice format but experienced difficulty with similar concepts tested in a written-response format. Those who reached the *standard of excellence* were able to use generalizations to solve problems and did well on questions that required the use of ratios in the solutions. They were adept at selecting the correct response in the multiple-choice section and in creating their own

Table 7-6

Physics 30
Comparison of Diploma Examination Results
January and June 1992

	January 1992	June 1992
Students Achieving Acceptable Standard or Higher	80.7%	80.0%
Students Achieving Standard of Excellence or Higher	20.4%	23.1%
Diploma Examination Average	64.9%	64.8%

responses for similar questions in the numerical-response and written-response sections. When confronted with a problem requiring the use of two or more steps, they created their own procedures for solving problems. Many of their responses to the written-response questions showed a high level of sophistication.

Do the population and performance data reveal any significant trends?

The overall achievement of students writing the Physics 30 diploma examinations has been fairly consistent. Students continue to do well on the multiple-choice and numerical-response sections of the examinations. In the written-response section, there has been a decrease in the number of students who leave questions blank. This number is now less than 5% on any item, compared to 15% to 20% blanks in earlier years.

Achievement has shown improvement in some specific areas. Students have shown a marked increase in their ability to solve problems involving routine calculations. They perform well on problems requiring single-step or two-step calculations but continue to have major difficulties using ratios. A second area that shows improvement is the recognition and identification of electric fields associated with point charges, as well as the understanding of Coulomb's inverse square law governing the magnitude of these electric fields. Students are still somewhat confused between electric forces and electric fields. A notable improvement was observed in problems requiring the use of graphical analysis. Students are able to present data graphically quite well and find the slope of such graphs. They are able to carry out complex analyses requiring the use of the slope and intercepts. However, a continued emphasis is still required in the area of curve-straightening.

Appendix A

Diploma Examination Development Process

The staff of the Student Evaluation Branch give great care and attention to the development and marking of all diploma examinations to ensure that students' marks on diploma examinations are fair and equitable measures of their achievement.

Professional staff of the Student Evaluation Branch work with many individuals in the complex process of developing diploma examinations. Classroom teachers, school and jurisdiction administrators, representatives from post-secondary institutions, and staff of the Curriculum Branch, Language Services Branch, and Regional Offices of Alberta Education are all involved.

It takes approximately 18 months to complete the development of a diploma examination. The examination development process follows these steps:

- Planning
- Approving Examination Blueprints
- Developing Examination Questions
- Constructing and Administering Field Tests
- Analysing and Revising Questions
- Constructing the Examinations
- Approving the Examinations
- Printing and Administering the Examinations
- Marking the Examinations
- Analysing and Reporting the Results

Planning

The first step in the planning phase is to prepare (under direction from the Curriculum Branch) specifications based on the goals and objectives of the curriculum for each subject.

Examination developers in each diploma examination course then prepare an interim examination blueprint. An examination blueprint is an overall plan used to guide the development of an examination. If a diploma examination is undergoing extensive revision because of curricular change, or if a new examination is to be developed, an advisory committee of teachers and subject consultants will contribute to decisions about the emphasis and design of the examination.

As blueprints are drafted and examinations designed, examination developers and advisory committees must address these questions:

- What knowledge and skills can students be expected to possess?
- How can the various parts of the curriculum best be tested?
- What should be the weighting for each part of the curriculum tested?
- How long and how demanding should the examination be?
- What format will produce the most valid results?
- What types of questions will be most valid and reliable? (Multiple choice, short answer, extended written response?)
- How should the examination be organized to produce valid and reliable results?
- How will students' responses be scored? What will the criteria be for scoring?
- How should the results be reported?
- Who will receive the results?

To ensure that each examination is a fair and equitable measure of students' accomplishments in the course, and to ensure that results will be meaningful and reliable, examination developers incorporate curricular as well as statistical standards into the examination design.

Examination questions are developed to reflect the range of expectations for students' achievement that is embedded in the curriculum. Each question is classified and cross-referenced to the curriculum in terms of the specified knowledge, skills, and understanding the question is assessing. The range of difficulty embedded in the curriculum dictates the range of difficulty of examination questions.

Field testing confirms and validates the curricular expectations as reflected by the questions. Item analysis of the machine-scorable field tested questions provides technical data about the relative difficulty of questions and about the technical strength of sets of questions. Field tested questions are kept for use on a diploma examination or are re-field tested to ensure that they meet appropriate technical and curricular standards, or such questions are discarded.

Approving Examination Blueprints

When examination developers and their advisory committees have developed an examination design and blueprint, including criteria for scoring written responses, a committee of Alberta Education staff (Regional Offices of Alberta Education, the Curriculum Branch, Language Services Branch, and the Student Evaluation Branch)

review the proposed design. The blueprint and design the committee recommends is then reviewed by an Examination Review Committee consisting of representatives nominated by the Alberta Teachers' Association, the Conference of Alberta School Superintendents, the Universities Co-ordinating Council, the Public Colleges of Alberta, and Alberta Education. This committee makes recommendations regarding the final examination design to the Director of the Student Evaluation Branch.

Developing Examination Questions

Following approval of the examination design, format, and blueprints, examination developers plan for question development. On the recommendations of superintendents, classroom teachers from across the province are selected to work on question development committees chaired by examination developers from the Student Evaluation Branch.

Professional examination development staff of the Student Evaluation Branch ensure that teachers serving on question development committees understand the technical principles of question construction. The teacher committees develop questions that meet the curricular and technical standards incorporated in the examination design and blueprints, and that will fairly test the skills and concepts that students can be expected to have acquired.

Questions developed in committee are then carefully screened, edited, and revised so that all blueprint requirements and technical standards are met. At this point, copyright approval is sought for testing materials such as literary selections, cartoons, graphs, maps, charts, and data sets.

Constructing and Administering Field Tests

Examination developers at the Student Evaluation Branch construct field tests containing questions developed by teacher committees. Each field test is carefully edited and revised to ensure technical and curricular validity and faithfulness to the examination blueprint. School jurisdiction personnel grant permission for the administration of field tests to students in their systems in January and/or June of each school year.

Based on the geographic and demographic variables expected for the total population that will write a given diploma examination, the Student Evaluation Branch field testing administration staff selects a minimum sample of 250 students to write each field test. Field tests are administered only to students who are nearing completion of the diploma examination subject being tested so that their performances on the field test will be predictive of the performances of students writing the diploma examination.

Student Evaluation Branch professional staff members administer the field tests under secured examination conditions. This procedure allows examination developers to receive first-hand information from teachers and students about examination questions and formats. As well, the procedure ensures test security and uniform administration conditions so that statistical results can be considered reliable.

Teachers whose classes participate in field testing comment on:

- level of difficulty of questions
- curricular validity
- appropriateness of questions, data sets, reading selections, format
- problems with questions, stimulus material, art work
- clarity of instructions
- correspondence between questions and the way in which a concept is taught.

Students are also encouraged to discuss the field test with the field test administrator.

All of the data from field testing—statistical and anecdotal—provide the examination developer with accurate and first-hand information that is used to ensure that the final form of each diploma examination is a valid and reliable measure of students' achievement.

Analysing and Revising Questions

Examination developers carefully analyse the statistical results and teacher comments for each field test to determine the need for additional field testing. Individual questions or question sets requiring changes are revised and submitted for further field testing. If changes are not feasible, questions are discarded.

Questions and question sets that prove successful in field testing are considered for inclusion in a diploma examination.

Constructing the Examinations

The diploma examinations are composed of questions and/or question sets that have proven to be valid in field testing. For each diploma subject, three parallel examinations are developed annually for administration in January, June, and August. The three examinations are designed to be parallel in form and equivalent in difficulty. Each examination is constructed according to the approved blueprint (i.e., each will have approximately the same number of questions testing a particular facet of the curriculum as specified by the blueprint). An information bulletin outlining the design, format, and marking criteria for each diploma examination subject is distributed to schools at the beginning of each school year. The information bulletins include changes from previous years' examinations, sample questions, and scoring guides.

Approving the Examinations

Once a final form of a diploma examination is drafted, it receives extensive editing, proofreading, and technical checking. The examination developers from the Student Evaluation Branch present the final form of each examination to the Alberta Education committee that

represents the Curriculum Branch or Language Services Branch and Regional Offices of Alberta Education for review and recommendations for improvement.

The recommendations of the Alberta Education committee are incorporated into any additional revisions that are necessary. The examination developers then present the examination to the Examination Review Committee that recommended approval of the examination blueprint in the second phase of the examination development process. The Examination Review Committee conducts a final review of the proposed examination and recommends approval to the Director of the Student Evaluation Branch.

Printing and Administering the Examinations

Following the Director's approval of the final form of a diploma examination, examination developers ensure completion of additional quality checks that include editing, proofreading, validating of correct answers by a teacher committee, checking print quality of art work and illustrations, confirming precise match to the blueprint, and completing a final estimate of difficulty for each question.

Each examination is printed and then distributed to schools just before the administration dates.

Schools are responsible for ensuring the security of examinations before administration and for ensuring that examinations are administered according to regulations. Each school receives extra copies of the January and June examinations for use in the school.

Diploma examinations are scheduled annually in January, June, and August, and are conducted according to examination regulations. Schedules and regulations are published in the *General Information Bulletin* that is distributed to schools each fall.

The August examinations are confidential and therefore remain secured.

Students identified as having learning and/or physical disabilities may apply for special provisions for examination writing. Special provisions include brailled examinations, large-print examinations, tape-recorded examinations, additional writing time, use of a word processor, use of a tape recorder for responses, and use of a sign language translator. The complete policy for special provisions is printed in the *General Information Bulletin* and is available on request from the Student Evaluation Branch (telephone 427-0010). Following administration, completed examinations are shipped (in accordance with security regulations) to Alberta Education in Edmonton for processing and marking.

Marking the Examinations

Markers for the written-response parts of the examinations are teachers nominated by their superintendents and are selected on a proportional basis so that the percentage of markers selected from a geographic area is comparable to the percentage of papers from that area. To be selected for marking, a teacher must be currently teaching the subject he or she wishes to mark, must have taught the course for at least two years, and must possess a valid Alberta Permanent Professional teaching certificate.

Selected classroom teachers are trained in the marking procedures and are supervised during the marking session by the professional staff from the Student Evaluation Branch.

The written-response parts of the diploma examinations are all marked centrally. All student and school identification is removed from the papers before the marking so that markers have no means of knowing the source of a paper. Written-response papers in English 30, English 33, Social Studies 30, and Français 30 receive three independent readings and are scored in several categories such as quality of language and expression, thought and detail, organization. Students' scores are then calculated by computer. The **median** score on each dimension is the score awarded. Papers receive a fourth reading on dimensions where the original three markers' scores are not sufficiently congruent. Multiple-choice responses are computer scored. During the marking session, each multiple-choice examination is carefully reviewed by a group of at least 20 teachers of the subject under consideration. In this "standard-confirming" review, the teachers assess the appropriateness of the standard of achievement built into the examinations.

Analysing and Reporting the Results

The statistical results of each examination and the recommendations of the standard confirmers are carefully analysed. The Examination Review Committee may be asked to review the results as well. Reports of local results in each subject are prepared for all school jurisdictions.

Individual student results are mailed about one month after the date on which the examinations were administered. Students who are dissatisfied with their results in any subject may request that their examination in that subject be rescored. The fee for rescoring, including GST, is $21.40 per examination. The mark awarded after the rescoring supersedes the initial mark.

For more information, call the Assistant Director of Examination Development for Language Arts and Social Studies or the Assistant Director of Examination Development for Mathematics and Sciences at 427-0010.

Appendix B

Guidelines for Interpreting and Using the Results of the Diploma Examinations

Use of the Reports

In addition to this *Diploma Examinations Program Annual Report*, superintendents and principals receive a confidential report of results achieved by the students in their jurisdictions or schools. Superintendents may also request similar reports for instructional groups within the school jurisdiction.

Educators in each jurisdiction are encouraged to study the examination results carefully and use them to determine the strengths and weaknesses of their program and resources.

The jurisdiction, school, and instructional group reports may be used to help:

- evaluate education programs in each course
- improve the quality of education programs
- identify the strengths and weaknesses of the individual student, school, and jurisdiction by comparing their results with provincial results.

Administrators in each jurisdiction should apply separate locally developed teacher, school, and school system evaluation policies to the tasks of evaluating teacher and school performance. These reports are *not* intended to be used as the basis for:

- evaluating teacher performance, or
- comparing performance between or among schools.

The information provided in the reports is factual regarding *what* has happened. The interpretation of this information involves many complex considerations of the factors and variables that contribute to achievement.

Factors Limiting the Interpreting of Examination Results

Educators who are interpreting diploma examination results must take into account the following limitations:

1. School-awarded marks and diploma examination marks are complementary measures. The purpose of the examination is to provide a common measure of achievement for students throughout the province. School-awarded marks should reflect *all* important aspects of learning in a course, including those that cannot be measured by time-limited, paper and pencil tests. Therefore, differences are to be expected between a student's school-awarded mark and that student's diploma examination mark in a course. Any comparisons of the two marks should be restricted to group statistics for groups of reasonable size and should be made with full knowledge of the differences between the two measures.

2. The differences between provincial results and local results are affected by the size of the jurisdiction, the school, and the group.

3. Final course mark distributions cannot be directly compared to school-awarded mark distributions or to diploma examination mark distributions.

4. Factors affecting student selection of diploma examination courses vary from school to school. These factors must be considered when comparing school or jurisdiction marks with provincial marks:

   - Some schools may have a limited selection of courses. Students with weak academic records who, in other schools, would have selected nonexamination courses will find it necessary to take diploma examination courses for credits.
   - Some schools may have a policy of encouraging students to challenge any diploma examination course, which results in a higher-than-usual proportion of students taking those courses.
   - Some schools may have a policy of discouraging students with weak academic records from enrolling in particular diploma examination courses, which results in a lower-than-usual proportion of students taking those courses.

Factors That May Affect Student Achievement

Many factors or variables may contribute to student achievement, some of which are:

1. **Environment**
   - community environment
   - school environment
   - socioeconomic background
   - family circumstances

2. **Student Factors**
   - ability
   - attitude
   - motivation
   - aspiration
   - academic background
   - learning style

3. **Resources (availability and appropriateness)**
   - programs of study
   - curriculum guides
   - resource materials
   - library services
   - current textbooks
   - references

4. **Instruction**
   - qualifications of teachers
   - teacher experience

- professional development
- teacher morale
- teaching strategies
- hours of instruction
- staff turnover
- amount of homework assigned
- communication of teacher expectations.

A Systematic Approach for the Effective Use of Diploma Examination Results

Diploma examination results can be used constructively as one means of improving the quality of education. A systematic use of these results would include the following steps:

1. Comparing test results for a school or instructional group with the provincial results. Be sure that your comparisons include the:
   - total test score
   - total multiple-choice and written-response scores
   - subscale scores for multiple-choice and written-response questions (this current administration as well as results over time)
   - individual multiple-choice and written-response question results.
2. Noting any patterns, anomalies and/or interrelationships in the results.
3. Hypothesizing relationships between your observations and any of the factors above that may have had an effect on achievement.
4. Considering and implementing a plan that will help improve the quality of education for students.

An Administrative Model for the Effective Use of Examination Results

The following model may be useful for those who wish to develop a constructive system for interpreting diploma examination results. This model is based on work done by Medicine Hat School District #76.

Basic Principles

1. It is desirable and feasible to ask teachers and school administrators to take responsibility for analysing and using provincial test results.
2. The development of analyses statements and action plans by individual schools is a more productive and positive activity than generalizations made by an external source.
3. There are identifiable groups of factors which affect student achievement that should be analysed and commented upon when reviewing the results of each test.
4. Subtest results are often more informative than are total test scores.
5. Generalizations should be based upon long-term data.
6. It is not necessarily desirable or productive to compare the marks of schools with one another.
7. Standardized tests measure a core of the program being taught. However, some skills and concepts not measured are worth teaching and learning.
8. Ensuring that there is an alignment between the objectives of the curriculum being taught and the test measures being used will increase the level of students' success.
9. Written reports, follow-up by means of written response, and occasional face-to-face meetings are useful means of ensuring that results are appropriately interpreted and used.

Suggested Content for Interpreting Individual School Results

1. Subject, name, grade level, and administration date of the examination(s)
2. Number of students who wrote the examination
3. Profile of students who wrote the examination:
   - noteworthy individual characteristics
   - general or group characteristics
   - previous performance in other years
4. Retention rates: the number of students enrolled in the grade or subject in the previous two years
5. School performance as compared with district and provincial averages
6. Present school performance as compared with previous years
7. Subtest results: a discussion of how students performed on each of the subtests, possible reasons for results, and recommended action
8. Item analysis: those items where a significant number of students chose a response other than the correct answer; i.e., do the resources being used appropriately present the material being tested?
9. Program emphasis:
   - hours of instruction
   - skills and content emphasized or de-emphasized
10. Instructional practice:
    - methodology
    - curriculum fit
    - resources
11. Program objectives that are not measured by paper-and-pencil tests but that are worth teaching
12. Recommendations for next year: a list that describes actions that should continue to occur, should be enhanced, or should be changed
13. Summary report: general concluding comments regarding the analysis, report, examination, and recommendations
14. Name and signature of teacher or department head and principal.

Suggested Procedures for Reporting

1. Teachers, department heads and/ or principals analyse and prepare a written report about each administration of a diploma examination.

2. Principals review and sign the report.

3. The report is shared with central office supervisory personnel.

4. The appropriate central office supervisory personnel prepare a written response to the report and send copies of the response to the teacher, department head, and principal.

5. If possible, all involved staff meet to discuss the report and the response.

6. When necessary or desirable, a more immediate analysis of specific subtest scores may be requested for a specific class, grade, school, or examination.

7. A sampling of the reports will be shared with the Education/ Personnel Committee of the board.

8. All reports will be used as an additional means of recognizing the quality of instruction being delivered to students. The analysis will be used to improve the program being offered and maximize the opportunities for students to be successful.

9. Where results are significantly different from those expected by school staff, consider arranging for a program evaluation that would measure such things as the variance between the program being offered and the specifications for an individual examination.

10. The report for the January and June administrations will include comprehensive retention rates for three years of the program.

Appendix C

Percentage Distribution of Marks in Diploma Examination Courses

Diploma Examination Course	School-Awarded Mark	Diploma Examination Mark	Final Course Mark	*January 1991 Final Course Mark*
	January 1992*			
ENGLISH 30			***N* = 10 514**	***N* = 9 805**
A (80-100%)	15.8	8.2	9.6	9.6
B (65-79%)	40.5	34.8	40.2	41.4
C (50-64%)	36.4	43.3	45.0	44.2
F (0-49%)	7.3	13.7	5.2	4.8
Mean	66.1	62.4	64.8	65.2
Standard Deviation	12.3	11.9	10.8	10.7
ENGLISH 33			***N* = 4 090**	***N* = 3 968**
A (80-100%)	5.1	5.2	3.2	2.6
B (65-79%)	35.5	41.1	38.5	37.3
C (50-64%)	48.1	41.1	52.8	53.3
F (0-49%)	11.3	12.6	5.5	6.8
Mean	61.3	62.7	62.5	61.9
Standard Deviation	11.0	11.3	9.3	9.3
FRANÇAIS 30* *			***N* = 11**	***N* = 35**
A (80-100%)	n/a	n/a	n/a	17.1
B (65-79%)	n/a	n/a	n/a	60.0
C (50-64%)	n/a	n/a	n/a	22.9
F (0-49%)	n/a	n/a	n/a	0.0
Mean	n/a	n/a	n/a	71.2
Standard Deviation	n/a	n/a	n/a	8.6
SOCIAL STUDIES 30			***N* = 8 696**	***N* = 8 735**
A (80-100%)	17.4	14.2	14.6	14.0
B (65-79%)	39.1	33.9	37.7	39.0
C (50-64%)	37.2	34.7	40.0	40.3
F (0-49%)	6.3	17.2	7.7	6.7
Mean	66.7	63.4	65.4	65.6
Standard Deviation	12.2	14.2	12.5	12.1

* For the first time, the January 1992 statistics do not include data from the Northwest Territories. The figures may change slightly as a result of appeals of school-awarded marks, rereads of diploma examinations, or special cases considerations.

** The January 1992 results for Français 30 are not reported because only 11 students received final blended marks.

(continued)

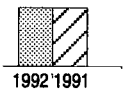
Percentage Distribution of Marks in Diploma Examination Courses

Diploma Examination Course	January 1992* School-Awarded Mark	Diploma Examination Mark	Final Course Mark	*January 1991 Final Course Mark*
MATHEMATICS 30			***N* = 9 233**	***N* = 9 232**
A (80-100%)	22.0	18.1	**19.3**	19.8
B (65-79%)	34.3	28.6	**32.3**	30.3
C (50-64%)	33.2	30.6	**36.8**	36.2
F (0-49%)	10.5	22.7	**11.6**	13.7
Mean	66.9	63.3	**65.5**	65.0
Standard Deviation	14.5	16.6	**14.7**	15.5
BIOLOGY 30			***N* = 9 228**	***N* = 8 630**
A (80-100%)	19.6	19.6	**18.8**	19.3
B (65-79%)	35.7	27.6	**32.5**	30.8
C (50-64%)	36.6	30.3	**37.2**	36.8
F (0-49%)	8.1	22.5	**11.5**	13.1
Mean	66.7	63.1	**65.3**	64.9
Standard Deviation	13.1	17.0	**14.4**	14.7
CHEMISTRY 30			***N* = 7 462**	***N* = 6 987**
A (80-100%)	22.7	21.9	**21.6**	21.3
B (65-79%)	36.9	29.9	**35.6**	35.6
C (50-64%)	32.9	30.7	**33.5**	34.2
F (0-49%)	7.5	17.5	**9.3**	8.9
Mean	67.9	65.1	**67.0**	67.1
Standard Deviation	13.5	16.4	**14.2**	14.0
PHYSICS 30			***N* = 3 338**	***N* = 3 128**
A (80-100%)	30.2	20.4	**23.2**	25.3
B (65-79%)	39.6	35.0	**39.4**	39.3
C (50-64%)	25.6	25.3	**29.6**	30.0
F (0-49%)	4.6	19.3	**7.8**	5.4
Mean	71.2	64.9	**68.4**	69.7
Standard Deviation	12.9	16.2	**13.7**	13.2

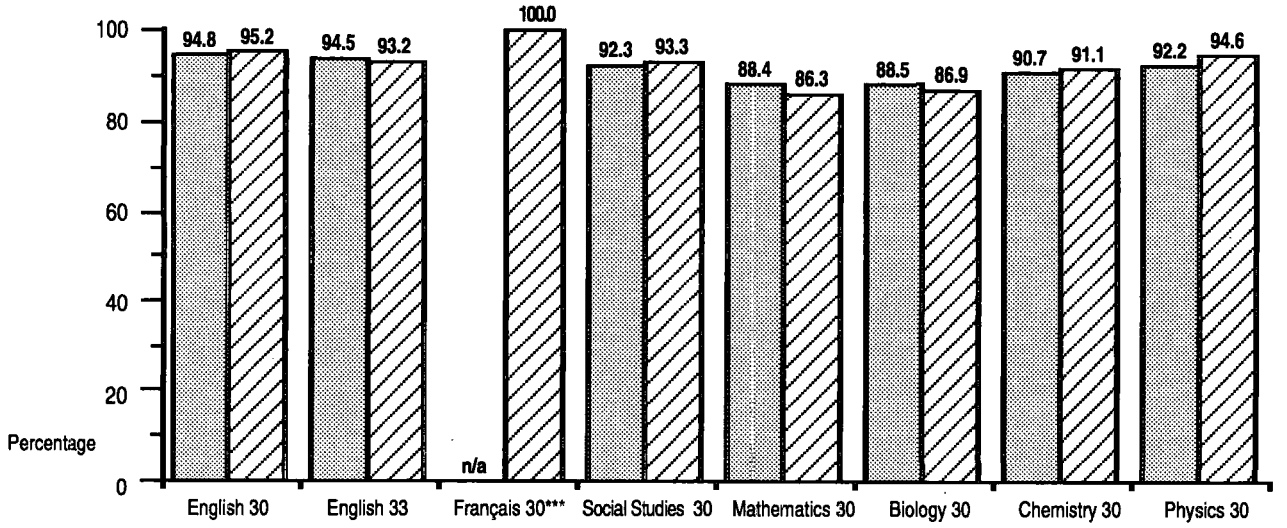
* For the first time, the January 1992 statistics do not include data from the Northwest Territories. The figures may be changed slightly as a result of appeals of school-awarded marks, rereads of diploma examinations, or special cases considerations.

Diploma Examination Courses
Final Course Marks

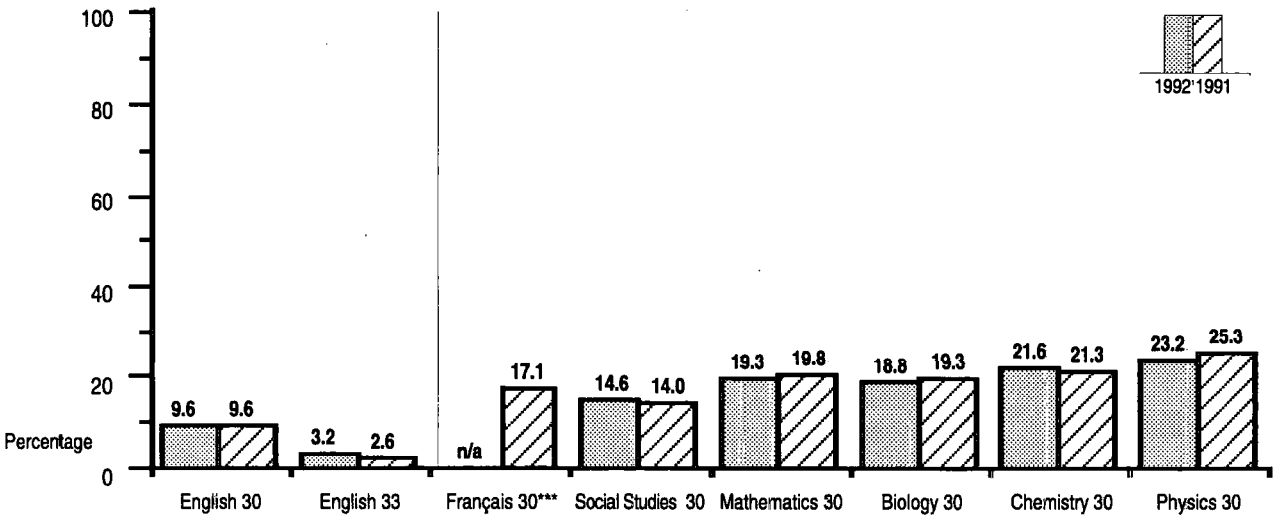
January 1992* and January 1991



Percentage of Students Achieving Acceptable Standard or Higher**



Percentage of Students Achieving Standard of Excellence or Higher**



** For the first time, the January 1992 statistics do not include data from the Northwest Territories.*

*** The **Acceptable Standard** or higher (final course mark of 50% to 100%).*
*The **Standard of Excellence** or higher (final course mark of 80% to 100%).*

**** The results for January 1992 are not reported because only 11 students received final course marks.*

Percentage Distribution of Marks in Diploma Examination Courses

Diploma Examination Course	June 1992* School-Awarded Mark	Diploma Examination Mark	Final Course Mark	*January 1991 Final Course Mark*
ENGLISH 30			***N* = 14 176**	*N* = 13 854
A (80-100%)	18.3	12.3	**13.2**	11.0
B (65-79%)	40.1	38.5	**41.8**	42.6
C (50-64%)	33.7	38.6	**40.3**	42.4
F (0-49%)	7.9	10.6	**4.7**	4.0
Mean (%)	66.7	64.9	**66.2**	65.8
Standard Deviation (%)	12.9	12.2	**11.3**	10.7
ENGLISH 33			***N* = 5 140**	*N* = 4 829
A (80-100%)	5.3	5.3	**3.1**	3.4
B (65-79%)	31.3	39.8	**35.1**	35.7
C (50-64%)	48.1	40.8	**53.9**	53.9
F (0-49%)	15.3	14.1	**7.9**	7.0
Mean (%)	60.0	62.2	**61.6**	61.8
Standard Deviation (%)	11.8	11.5	**9.7**	9.7
FRANÇAIS 30			***N* = 73**	*N* = 35
A (80-100%)	21.9	6.8	**6.9**	17.1
B (65-79%)	53.4	46.6	**57.5**	60.0
C (50-64%)	21.9	41.1	**35.6**	22.9
F (0-49%)	2.8	5.5	**0.0**	0.0
Mean (%)	70.5	66.1	**68.6**	70.5
Standard Deviation (%)	9.5	10.7	**9.2**	9.0
SOCIAL STUDIES 30			***N* = 12 395**	*N* = 11 874
A (80-100%)	21.7	12.4	**15.1**	17.4
B (65-79%)	36.9	31.2	**35.2**	36.9
C (50-64%)	34.7	33.9	**39.7**	37.6
F (0-49%)	6.7	22.5	**10.0**	8.1
Mean (%)	67.4	61.6	**64.8**	66.1
Standard Deviation (%)	13.0	14.8	**13.1**	12.9

* The June 1992 statistics do not include data from the Northwest Territories. The figures may change slightly as a result of appeals of school-awarded marks, rereads of diploma examinations, or special cases considerations.

(continued)

Percentage Distribution of Marks in Diploma Examination Courses

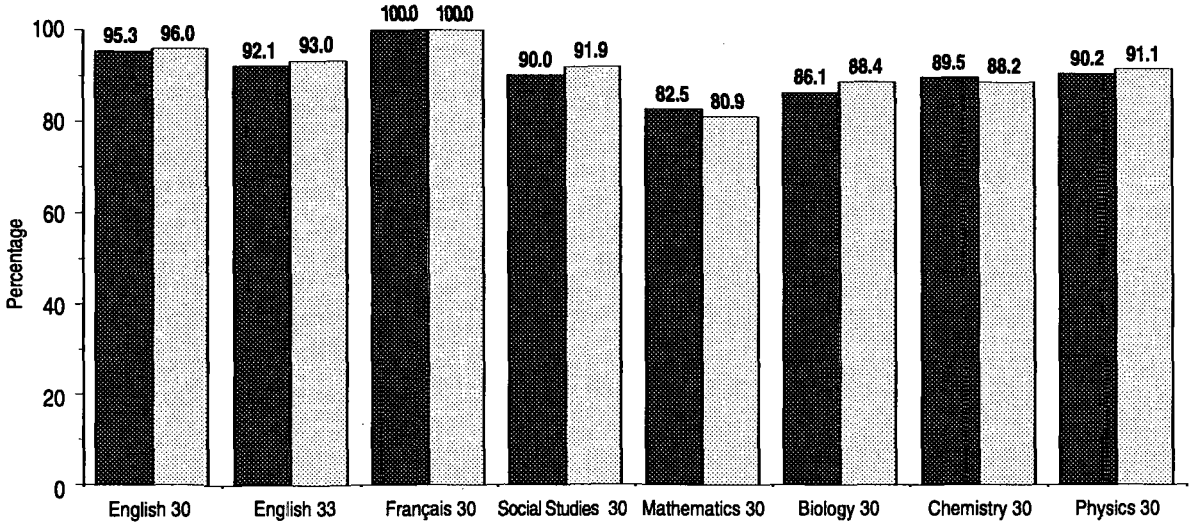
Diploma Examination Course	June 1992* School-Awarded Mark	Diploma Examination Mark	Final Course Mark	*January 1991 Final Course Mark*
MATHEMATICS 30			***N* = 10 749**	*N* = 10 278
A (80-100%)	20.8	11.9	**14.2**	20.1
B (65-79%)	31.4	24.0	**28.8**	24.8
C (50-64%)	35.8	31.3	**39.5**	36.0
F (0-49%)	12.0	32.8	**17.5**	19.1
Mean (%)	65.7	57.8	**62.1**	63.2
Standard Deviation (%)	14.8	17.2	**15.0**	16.9
BIOLOGY 30			***N* = 11 470**	*N* = 11 078
A (80-100%)	23.4	19.9	**20.6**	22.4
B (65-79%)	34.3	26.5	**30.5**	32.1
C (50-64%)	33.8	26.6	**35.0**	33.9
F (0-49%)	8.5	27.0	**13.9**	11.6
Mean (%)	67.5	62.1	**65.2**	66.4
Standard Deviation (%)	13.8	17.9	**15.2**	14.8
CHEMISTRY 30			***N* = 8 980**	*N* = 8 610
A (80-100%)	26.5	21.4	**22.5**	23.5
B (65-79%)	35.5	30.1	**35.0**	32.8
C (50-64%)	29.4	30.0	**32.0**	31.9
F (0-49%)	8.6	18.5	**10.5**	11.8
Mean (%)	68.6	64.9	**67.1**	66.8
Standard Deviation (%)	14.3	16.6	**14.7**	15.2
PHYSICS 30			***N* = 4 953**	*N* = 4 778
A (80-100%)	29.8	23.1	**25.1**	25.0
B (65-79%)	38.2	29.0	**35.7**	35.5
C (50-64%)	25.6	27.9	**29.4**	30.6
F (0-49%)	6.4	20.0	**9.8**	8.9
Mean (%)	70.7	64.8	**68.1**	68.3
Standard Deviation (%)	13.8	17.4	**14.8**	14.3

** The June 1992 statistics do not include data from the Northwest Territories. The figures may change slightly as a result of appeals of school-awarded marks, rereads of diploma examinations, or special cases considerations.*

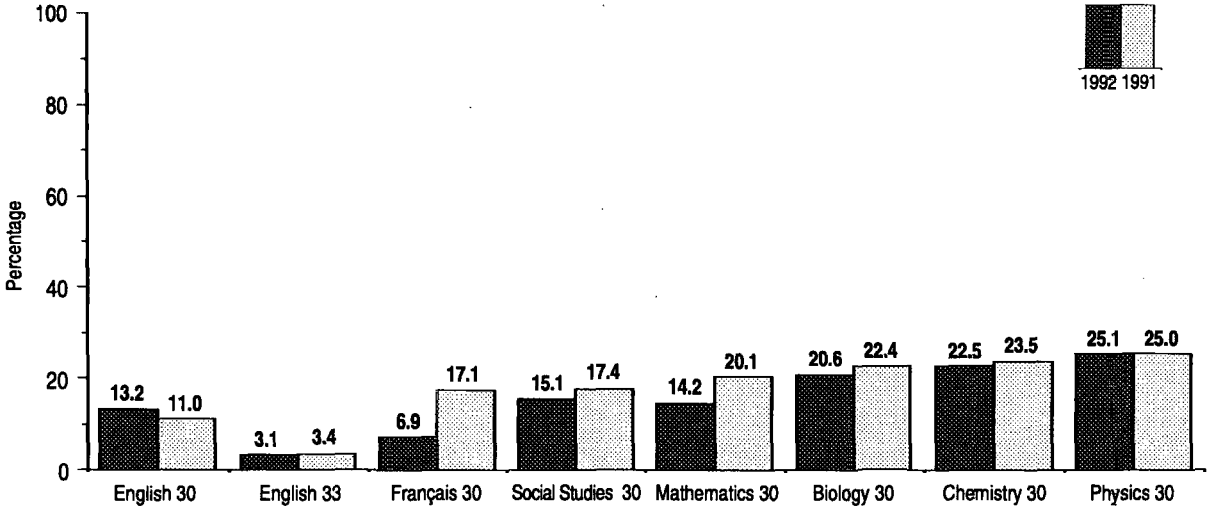
Diploma Examination Courses
Final Course Marks

June 1992* and June 1991

Percentage of Students Achieving Acceptable Standard or Higher**



Percentage of Students Achieving Standard of Excellence or Higher**



** The June 1992 statistics do not include data from the Northwest Territories.*

*** The **Acceptable Standard** or higher (final course mark of 50% to 100%).*
*The **Standard of Excellence** or higher (final course mark of 80% to 100%).*

Diploma Examinations Program
Annual Report Questionnaire

The Student Evaluation Branch strives to produce documents that will be useful to educators. The purpose of this questionnaire is to collect your opinions about the *Annual Report*. All opinions will be considered when the content and format of the report are reviewed before the production of the next issue.

Please take a moment to respond to the questions and send to:

Michael Robinson
Assistant Director, Analytical Services
Student Evaluation Branch
Alberta Education
11160 Jasper Avenue
Edmonton, Alberta T5K 0L2
FAX: 422-4200

Your Use of the 1991-92 Annual Report

1. Check the boxes that apply to you.

   Currently, I am primarily a

   - teacher ☐
   - school administrator ☐
   - central office administrator ☐
   - school board member ☐
   - other (please specify) _____

2. I read the report, but I DID NOT use it to interpret my students' results. ☐

3. I read the report, and I used it to interpret students' results in

   - my classroom ☐
   - my school ☐
   - my jurisdiction ☐

4. If you checked one of the three boxes in question 3, please respond to this question.

   I used the results to alter the education program in

   - my classroom ☐
   - my school ☐
   - my jurisdiction ☐

Continued

Content of the Report

1. Please check the appropriate box to indicate your assessment of each section of this report.

	Very Useful	Adequately Useful	Somewhat Useful	Not Useful
Section 2: Summary of Results	☐	☐	☐	☐
Section 3: Results by Gender	☐	☐	☐	☐
Section 4: Results for Population Subgroups	☐	☐	☐	☐
Section 5: Special Study: Participation Rates	☐	☐	☐	☐
Section 6 : Achievement-Over-Time Studies	☐	☐	☐	☐
Section 7: Examiners' Annual Summary Statements	☐	☐	☐	☐

Format of the Report

1. Please check the appropriate box to indicate your assessment of the report's format.

	Very Useful	Adequately Useful	Somewhat Useful	Not Useful
Organization into Separate Sections	☐	☐	☐	☐
Triple-Column Presentation of Text	☐	☐	☐	☐
Presentation of Figures	☐	☐	☐	☐
Presentation of Tables	☐	☐	☐	☐
Blending of Information in Text, Figures, and Tables	☐	☐	☐	☐

2. Further comments on this report are most welcome. Please use the space below for that purpose, or write to the Assistant Director, Analytic Services, Student Evaluation Branch.